Ministry of Higher Education and Scientific Research
Department of Quality Assurance and Academic Accreditation
Department of Scientific Supervision and Evaluation Authority
Department of Accreditation

Academic Program and Course Description Guide

:the introduction

The educational program is a coordinated and organized package of courses that includes procedures and experiences organized into course vocabulary. Its main purpose is to build and refine the skills of graduates, making them qualified to meet the requirements of the labor market. It is reviewed and evaluated annually through internal or external audit .procedures and programs, such as the external examiner program

The academic program description provides a brief summary of the program's main features and courses, indicating the skills that students are working to acquire based on the academic program's objectives. The importance of this description is evident in that it represents the cornerstone for obtaining program accreditation, and it is written by the teaching staff under the supervision of the scientific committees in the .academic departments

This second edition of the guide includes a description of the academic program after updating the vocabulary and paragraphs of the previous guide in light of the developments and changes in the educational system in Iraq, which included a description of the academic program in its traditional form (annual, semester system), as well as adopting the generalized academic program description according to the Department of Studies' letter T M3/2906 dated 3/5/2023 with regard to programs that .adopt the Bologna Process as the basis for their work

In this regard, we cannot but emphasize the importance of writing descriptions of academic programs and courses to ensure the smooth .running of the educational process

نموذج وصف البرنامج الأكاديمي

اسم الجامعة: ...تكريت. .....

الكلية/ المعهد: .....الآداب.....

القسم العلمي: .....الجغرافية ونظم المعلومات الجغرافية.....

اسم البرنامج الأكاديمي او المهني: .علم البيئة ومشكلاتها .... .

اسم الشهادة النهائية:. بكالوريوس....

النظام الدراسي: سنوي

تاريخ اعداد الوصف: 10 / 9 / 2025

تاريخ ملء الملف: 11 / 9 /2025

التوقيع:

اسم رئيس القسم:أ.م.د. محمد نجم خلف

التاريخ: 14 / 9 / 2025

التوقيع:

اسم المعاون العلمي: أ. د. عطية مسلم حمد

التاريخ: 15 / 9 / 2025

دقق الملف من قبل

شعبة ضمان الجودة والأداء الجامعي

اسم مدير شعبة ضمان الجودة والأداء الجامعي:

التاريخ : 2025/9/15

التوقيع:

مصادقة السيد العميد

كلية الآداب

شعبة ضمان الجودة وتقييم الاداء

1. Program Vision
The Department of Geography and Geographic Information Systems aspires to be

among the leading departments in scientific institutions in the field of quality assurance and accreditation. This ambition stems from the distinguished contributions of its scholars to the Arab world and beyond throughout its illustrious academic history. The department offers high-quality academic programs that prioritize knowledge and foster a robust and innovative outlook. Furthermore, it strives to play a pioneering role in education, research, and training in geographical sciences and technologies, and to actively contribute to addressing all societal .needs

.2 Program message

The Department of Geography and Geographic Information Systems / College of Arts seeks to achieve a quality management system in accordance with the in all its educational, research and , (**ISO 9001**) international standard administrative aspects, through planning, organizing and directing all activities and monitoring them, to raise the efficiency of its affiliates, including the affiliates and professors of the Department of Geography and Geographic Information Systems, as this department is distinguished from other departments of the College of Arts by the fact that it combines three axes of information, curricula and applications specific to its curricula: pure natural sciences, human and social sciences, geographic technologies and geographic information systems and geographic statistics, and adopting their creative ideas with the motivation of continuous development in light of a suitable work environment that achieves their job satisfaction, in order to reach accreditation that ensures that the institution has met the conditions and specifications of approved quality, in accordance with the international standards of evaluation institutions, in order to recognize the scientific qualifications of its graduates, and to preserve the cultural and national .identity of our Iraqi society in the face of scientific competition

.3 Program objectives

.1 To prepare a graduate who possesses the ability to understand the relationship between the environment and humans by studying the interaction between humans and their environment, how humans affect the environment through agriculture, industry, and urbanization, and how societies adapt. Humanity with environmental conditions such as climate and terrain.
.2 To prepare a graduate who has the ability to analyze the natural and human characteristics of a place using modern technologies such as: remote sensing, geographic information systems, and artificial intelligence tools, and to model them spatially, and present them in the form of accurate geographic maps that reflect the geographic data in an understandable way.
.3 To prepare a graduate who possesses the capabilities to diagnose and address contemporary problems and crises related to water resources, soil, climate change, environmental pollution, migration, housing, disasters, and other fields.
.4 To prepare a graduate who has the ability to apply theories and concepts of planning for sustainable development, and to emphasize that development is a complex process and a multi-dimensional phenomenon, which includes economic, social, environmental and institutional indicators.
.5 Preparing a graduate who has the ability to integrate theoretical and library aspects, the results of field or field studies, and advanced technological innovation tools in a harmonious manner to achieve the goals of scientific research, and to move away from and overcome the process of approximation.

.4 Program accreditation				
Is the program accredited? If so, by which body? No				
.5 Other external influences				
Is there a sponsor for the program? No				
.6 Program structure				
Program structure	Number of courses	Study unit	Percentage	* comments
Institutional requirements	41	156		
College requirements	nothing			
Department requirements	nothing			
Summer training	nothing			
Other	nothing			

* The notes may include whether the course is core or elective.

The study program .7					
First stage					
Credit Hours			Course Name	Instructor's Name	academic year
Number of units	practical	theoretical			
5	1	2	Foundations of remote sensing and information systems	Prof. Dr. Ahmed Abdel Ghafour Khattab, M.D. Saad	.1
5	1	2	Foundations of Meteorology and Climatology	Prof. Dr. Muthanna Mahrous Ali	.2
5	1	2	Foundations of Geomorphology and Geology	Prof. Dr. Muhammad Najm Khalaf	.3
5	1	2	Foundations of Cartography and Surveying	Dr. Ibrahim Hussein Ali	.4
4		2	C. The Ancient World	M.M. Marwa Taher Noman	.5
2		1	Arabic	Dr. Ahmed Shaheed Taaban	.6
2		1	Rights and Democracy	M.M. Aqaba Ahmed Alawi	.7
2		1	English language	M.M. Osama Mohammed Abdullah	.8
2		1	computer	M. Abdullah Ibrahim Shaaban	.9
32			the total		
	Phase Two				
Credit Hours			Course Name	Instructor's Name	academic year
Number of units	practical	theoretical			
5	1	2	Applied Geomorphology	Prof. Dr. Muhammad Najm Khalaf	.1
5	1	2	Applied climatology	M. M. Omar Ahmed Awad	**.2**
5	1	2	Geographical research methodology and field study	Prof. Dr. Adnan Attia Mohammed	.3
5	1	2	Population Geography and Demography	M.M. Zainab Jamal Naaman	.4
4		2	Geography of the New World	M.M. Marwa Taher Noman	.5
4	2	1	Remote sensing and geographic information systems applications	Dr. Ibrahim Hussein Ali	.6
4	2	1	Thematic maps	Dr. Aziz Ibrahim Ali	.7
2		1	Arabic	Dr. Ahmed Shaheed Taaban	.8
2		1	English language	M.M. Osama Mohammed Abdullah	.9

2		1	computer	M. Abdullah Ibrahim Shaaban	.10
2		1	Crimes of the Moth Party	M.M. Aqaba Ahmed Alawi	.11
40			the total		

Phase Three

Credit Hours			Course Name	Instructor's Name	academic year
Number of units	practical	theoretical			
6		3	C. Cities	Dr. Saadi Abdullah Ahmed + Ms. Sahar Ismail	.1
6		3	C. Agricultural	Prof. Dr. Zafer Ibrahim Taha	.2
5	1	2	Geographic statistics techniques	Dr. Hamda Hamoudi Sheet	.3
4		2	C. Transportation and Tourism	M.M. Basem Helou Mohammed	.4
4		2	C. Geographical Thought	Prof. Dr. Muhammad + Faza'a Ubaid M.M. Ahmed Nasser	.5
4		2	C. Medical	M.M. Adnan Mashhan Abdullah	.6
4		2	Geography of Energy and Minerals	M.D. Yasser Lafta Hussein	.7
4		2	Ecology and its problems	Dr. Aws Ali + Mohammed M.M. Nour Ramadan	.8
4		2	Soil and plant geography	Dr. Taghreed Khalil Mohammed	.9
4	2	1	An applied project using modern geographic technologies	Prof. Dr. Noor Fanar Abdelbaqi	.10
45			the total		

Phase Four

Credit Hours			Course Name	Instructor's Name	academic year
Number of units	practical	theoretical			
4		2	C. Iraq	M. Ali Faiq Mashal	.1
4		2	C. Political	Dr. Khattab Saad Muhaimid	.2
4	2	1	Geomatics	M.M. Saad Thamer Ibrahim	.3
4	2	1	Planning and Development	M. Ali Faiq Mashal	.4
2		1	English language	M. M. Anas Saleh Jassim	.5
5	1	2	Environmental problems	Dr. Aws Ali Mohammed M.M. Nour Ramadan	.6

4		2	Geography of Transport and Trade	Prof. Dr. Manhal Abdullah Hammadi M.M. Shaimaa Awad+	.7
2	2		Network analysis in Geographic Information Systems	Prof. Dr. Faiq Hassan Muhaimid	.8
2	2		Graduation research	—	.9
4		2	Energy Geography	M. Faten Saadoun Abboud	.10
4		2	Biogeography	Prof. Dr. Latif Mzaal	.11
39			the total		Fourth
156			Total number of units		

Expected learning outcomes of the program .8
Knowledge
To equip students with experience in thinking and analysis .1
To equip students with the ability to identify the problem of the phenomenon, its .2 consequences, and how to address it.
Gaining experience in map drawing using different software programs, including Geographic .3 Information Systems (GIS).
Skills
Theoretical aspect: Introduction to various geographical sciences, including physical (climate, .1 geomorphology) and human (Population, politics, cities) and other geographical sciences.
Practical Aspect: Applications of the ability to draw and represent maps using various .2 methods, including the use of Geographic Information Systems (GIS) and knowledge of statistical analysis.
Values
Enabling students to grasp the material both theoretically and practically .1
Enabling students to think and analyze in order to reach correct conclusions .2
Enabling students to prepare good scientific reports .3

Teaching and learning strategies .9
Using modern methods in teaching the subject .1
Using technological means to present scientific material, including data projectors and .2 PowerPoint.
Conduct field visits to learn about the topics studied in geography .3.

Assessment methods .10

• Daily assessment through discussion + daily quizzes + monthly exams + practical assignments and faculty reports

Faculty .11					
Faculty members					
position	**Specialization**	**General specialization**	**Scientific rank**	**Instructor's Name**	**T**
	C. Agricultural	Human Geography	.Mr	Dhafer Ibrahim Taha Yassin Al-Azzawi	1
	Hydromorpho	natural geography	.Mr	Latif Mazal Saleh Aswad Al-Dulaimi	2
	C. Transportation and Cities	Human Geography	.Mr	Manhal Abdullah Hamadi Ta'ma Al-Jubouri	3
	C. Agricultural	Human Geography	.Mr	Adnan Attia Mohammed Ali Al-Faraji	4
	C. Geographical Thought	Human Geography	.Mr	Mohammed Faza'a Obeid Khalaf Al-Azzawi	5
	C. Political	Human Geography	.Mr	Ahmed Abdul Ghafour Khattab Al-Sumaidi	6
	C. Climate	natural geography	Mr	Muthanna Mahrous Ali Mahmoud Al-Azzawi	7
	C. Political	natural geography	assistant professor	Saad Muhaymid Helou Al-Jubouri's speech	8
	C. Climate	Physical Geography	assistant professor	Hamda Hamoudi Sheet Hayawi Al-Obaidi	9
Head of Department	**Geomorphology**	natural geography	assistant professor	Mohammed Najm Khalaf Saleh Al-Jubouri	10
	C. Soil	natural geography	assistant professor	Tweet by Khalil Mohammed Al-Maamouri	11
	C. Cities	Human Geography	assistant professor	Saadi Abdullah Ahmed Rahim Al-Douri	12
	Maps and Geographic Information Systems	natural geography	assistant professor	Faiq Hassan Muhaymid Farhan Al-Jubouri	13
Graduate Studies Course	maps	Human Geography	assistant professor	Aziz Ibrahim Ali Obeid Al-Azzawi	14
	Geographic Information Systems	natural geography	assistant professor	Nour Fener Abdul Baqi Jawad	15
	C. Desertification and Environment	Physical Geography	Professor Doctor	Aws Ali Mohammed Khalaf Al-Jubouri	16
	maps	Human Geography	Professor Doctor	Ibrahim Hussein Ali Khalifa Al-Khazraji	17
	C. Industrial	Human	Professor	Yasser Lafteh Hussein	18

		Geography	Doctor	Alwan Al-Azzawi	
	C. Maps	Applied Geography	Professor Doctor	Saad Thamer Ibrahim Khalid Al-Hamdani	19
	C. Energy	Applied Geography	teacher	Faten Saadoun Aboud Ahmed	20
	C. Political	Applied Geography	teacher	Aqaba Ahmed Alawi Mustafa Al-Jubouri	21
	C. Planning	Applied Geography	teacher	Ali Faiq Mashal Qaddouri Al-Obaidi	22
	C. Tourism	Applied Geography	Assistant teacher	Basem Helou Mohammed Taha Al-Obaidi	23
	C. Climate	Applied Geography	Assistant teacher	Marwa Taher Noman Omar	24
	Jemor Phology	Applied Geography	Assistant teacher	Wasan Shaker Mohammed Adhab Al-Jubouri	25
Department head	C. Climate	Applied Geography	Assistant teacher	Omar Ahmed Awad Abdul-Azzawi	26
	C. Population	Applied Geography	Assistant teacher	Zainab Jamal Naaman Jassim Al-Nasiri	27
	C. Transfer	Applied Geography	Assistant teacher	Ahmed Nasser Saber Alwan Al-Tai	28
	C. Population	Applied Geography	Assistant teacher	Noor Ramadan Ali Jassim Al-Obaidi	29
	C. Cities	Applied Geography	Assistant teacher	Shaimaa Awad Mukhlif Awad Al-Jubouri	30
	C. Cities	Human Geography	Assistant teacher	Sahar Ismail Ibrahim Musa Al-Jubouri	31
	C. Cities	Human Geography	Assistant teacher	Adnan Mashhan Abdullah	32

Professional Development
Orienting new faculty members
Involving them in some committees .1 Involving them in courses .2 Encouraging them to conduct scientific research .3
Professional development of faculty members
Involving them in scientific and administrative committees .1 Involving them in courses .2 Encouraging them to conduct scientific research .3

.12 Admission standard
Centralized admission by the Ministry of Higher Education .1 Admission based on the preparatory school certificate in its two branches (literary and .2 (scientific

.13 Key sources of information about the program

1. Recent scientific sources in Arabic and English

2. Arabic and English scientific journals

3. The professors' experience over the years

14. Program development plan

1. Developing a program to improve teaching staff by supporting and increasing development courses, and aligning it with international universities.
2. Developing a curriculum development program by creating new and advanced curricula, relying on technological development, especially (artificial intelligence).
3. Preparing the final stage of student projects, which includes laboratory work, field visits, information gathering, preparing statistics, and presenting the results in the form of reports prepared for the department, which aim to prepare the student for integration into the labor market.
4. Developing a program to improve publishing and scientific research by participating in courses on publishing in Clarivate and Scopus databases and relying on modern scientific ideas.
5. The possibility of cooperating with several institutions, including the General Authority for Meteorology and the Ministry of Planning's Statistics Department. Information Systems Department.

Course Description Template / Foundations Geomorphology

Course Name : Foundations Geomorphology	.1
: Course code	.2
Semester / Year : Annual	.3
Date this description was prepared	.4
2025/9/11	
: Available attendance formats	.5
Total study hours/total units: 90/5	.6
Name of the course coordinator (if there is more than one, please mention it).	.7
Dr. Muhammad Najm Khalaf	
Course objectives	.8
Introducing the student to the basics of geomorphology of land features and how to study them in a classical, manual and practical way using computers and modern technologies ·	
Teaching and learning strategies	.9
Continuous assessments, including daily and weekly tests, encourage students to use additional resources and benefit from available information, and include classroom activities.	
Course structure	.10

Week	Hours	Required learning outcomes	Unit or topic name	Learning method	Evaluation Method
1	2+2 1+2	Geomorphology Resources: Definition and Types	How it developed as an independent science How to study it as a resource	Theory/Discussion =	General questions =
2 2	2+2 1+3	The most important rocks and the reasons for their formation Rocks as a natural resource	How rocks of all types are formed How it was formed, and how it was extracted and utilized.	Theory/Discussion =	General discussion and questions =

General discussion and questions =	Theory/Discussion = =	How to study the various types of influential forces Soil as a natural resource	Forces influencing the formation of Earth's surface features Soil as a natural resource	2+2 1+3		3 3
Discussion and surprise exam =	Theory/Discussion =	Slopes and their types Natural plants as a natural resource	slopes natural plant	2+2 1+3		4 4
General questions and discussion =	Theory/Discussion =	Methods for identifying and analyzing sectors Types of soil, factors in their formation, problems, and solutions	topographic sectors Soil as a natural resource	2+2 1+2		5 5
General questions =	Theory/Discussion =	Sectoral morphology Resources as a natural resource	Geomorphological features within the sector Water resources	2+2 1+2		6 6
General discussion and questions =	Theory/Discussion =	Presenting and discussing field research =	Discussion panels Discussion panels	2+2 1+2		7 7
General discussion and questions =	My work discussio/n =	Field visit Field visit	Field visit Field visit	2+2 1+2		8 8
First semester test based on two exams				1		9 9
discussion =	Theory/Discussion =	Chemical and physical weathering Distribution of grasses in the world	Weathering Weeds and their distribution	2+2 1+2	10	10
General questions and discussion =	Theory/Discussion practical	The effects of weathering are chemical and .physical Key resources and their distribution within a map	The most important aspects of weathering Distribution of resources within the world map	2+2 1+2	11	11
Discussion questions practical	practical practical	Using computers in practical applications Practical applications for resource allocation: Soil mapping	Practical applications of regression extraction Practical applications	2+2 1+2	12	12
General	My work	Applying sector analysis	Quantitative and	2+2	13	13

questions and discussion	/ discussion	using equations and computer methods	computational methods for studying sectors			
General questions, discussion, and daily quiz	Theory/Discussion	Definition of erosion Water resources and their types	Erosion Water resource distribution	2+2 1+2	14	14
General questions and discussion =	Theory/Discussion =	Identifying types of erosion Understanding the relationship between water resources and population concentration	Types of erosion The role of water resources in settlement	2+2 1+2	15	15
General questions and discussion	Theory/ Practical	The role of rain erosion and how to measure it How to identify and map water sources	The most important phenomena resulting from rain erosion Mapping water resources	2+2 1+2	16	15
General questions and discussion =	Theory/Discussion =	What is river erosion and ?how is it measured How to utilize water	river erosion Using water resources	2+2 1+2	17	16
First month test for the second semester					18	17
General questions and discussion =	Theory/Discussion practical	How wave erosion occurs and its main consequences Methods used to invest in water in the world	Wave erosion How to develop water investment	2+2 1+2	19	18
General questions and discussion =	Theory/Discussion =	How does glacial erosion occur, and what are its ?main features How to develop methods for utilizing water	Glacial erosion Incorrect methods and treatment approaches	2+2 1+2	20	19
Practical tests	practical	Detecting types of erosion using computer programs and information systems	River erosion and how to represent it on maps	2+2	21	20
Practical tests	practical practical	Using topographic maps to extract the river network Using GIS software to analyze land cover	How to extract the river network Methods used to determine ground	2+2 1+2	22	21

			cover		
Course evaluation .11					
The student's commitment to submitting reports and assignments and respecting their deadlines. -1 Daily tasks and assignments. -2					
Learning and teaching resources .12					
Required textbooks (methodology, if applicable)			undations of Geomorphology - Muhammad Hussein Khalaf		
Main references (sources)			The Principles of Geomorphology, -1 Hassan Sayed Ahmed Abu Al-Ainin, University Culture Foundation, 14th edition, 1995.		
Recommended supporting books and references (scientific journals, reports...)					
Electronic references, websites					

Course Description Template / Geomorphology

.13 Course Name : Geomorphology	
.14 : Course code	
.15 Semester / Year : Annual	
.16 Date this description was prepared	
2025/9/11	
.17 : Available attendance formats	
.18 Total study hours/total units: 90/5	
.19 Name of the course coordinator (if there is more than one, please mention it.)	
Dr. Muhammad Najm Khalaf M.M. and Wasan Shaker	
.20 Course objectives	
Introducing the student to the geomorphology of land features and how to study them in a classical, manual, and practical way using computers and modern technologies ·	
.21 Teaching and learning strategies	
Continuous assessments, including daily and weekly tests, encourage students to use additional resources and benefit from available information, and include classroom activities.	

.22 Course structure

Week	Hours	Required learning outcomes	Unit or topic name	Learning method	Evaluation Method
1	2+2 1+2	Geomorphology Resources: Definition and Types	How it developed as an independent science How to study it as a resource	Theory/Discussion =	General questions =
2 2	2+2 1+3	The most important rocks and the reasons for their formation Rocks as a natural resource	How rocks of all types are formed How it was formed, and how it was extracted and utilized.	Theory/Discussion =	General discussion and questions =

General discussion and questions =	Theory/Discussion = =	How to study the various types of influential forces Soil as a natural resource	Forces influencing the formation of Earth's surface features Soil as a natural resource	2+2 1+3	3	3
Discussion and surprise exam =	Theory/Discussion =	Slopes and their types Natural vegetation as a natural resource	slopes natural plant	2+2 1+3	4	4
General questions and discussion =	Theory/Discussion =	Methods for identifying and analyzing sectors Types of soil, factors in their formation, problems, and solutions	topographic sectors Soil as a natural resource	2+2 1+2	5	5
General questions =	Theory/Discussion =	Sectoral morphology Resources as a natural resource	Geomorphological features within the sector Water resources	2+2 1+2	6	6
General discussion and questions =	Theory/Discussion =	Presenting and discussing field research =	Discussion panels Discussion panels	2+2 1+2	7	7
General discussion and questions =	My work discussio/n =	Field visit Field visit	Field visit Field visit	2+2 1+2	8	8
First semester test based on two exams				1	9	9
discussion =	Theory/Discussion =	Chemical and physical weathering Distribution of grasses in the world	Weathering Weeds and their distribution	2+2 1+2	10	10
General questions and discussion =	Theory/Discussion practical	The effects of weathering are chemical and .physical Key resources and their distribution within a map	The most important aspects of weathering Distribution of resources within the world map	2+2 1+2	11	11
Discussion questions practical	practical practical	Using computers in practical applications Practical applications for resource allocation: Soil mapping	Practical applications of regression extraction Practical applications	2+2 1+2	12	12
General	My work	Applying sector analysis	Quantitative and	2+2	13	13

questions and discussion	/ discussion	using equations and computer methods	computational methods for studying sectors			
General questions, discussion, and daily quiz	Theory/Discussion	Definition of erosion Water resources and their types	Erosion Water resource distribution	2+2 1+2	14	14
General questions and discussion =	Theory/Discussion =	Identifying types of erosion Understanding the relationship between water resources and population concentration	Types of erosion The role of water resources in settlement	2+2 1+2	15	15
General questions and discussion	Theoretical/ Practical	The role of rain erosion and how to measure it How to identify and map water sources	The most important phenomena resulting from rain erosion Mapping water resources	2+2 1+2	16	15
General questions and discussion =	Theory/Discussion =	What is river erosion and ?how is it measured How to utilize water	river erosion Using water resources	2+2 1+2	17	16
First month test for the second semester					18	17
General questions and discussion =	Theory/Discussion practical	How wave erosion occurs and its main consequences Methods used to invest in water in the world	Wave erosion How to develop water investment	2+2 1+2	19	18
General questions and discussion =	Theory/Discussion =	How glacial erosion occurs and its main features How to develop methods for utilizing water	Glacial erosion Incorrect methods and treatment approaches	2+2 1+2	20	19
Practical tests	practical	Detecting types of erosion using computer programs and information systems	River erosion and how to represent it on maps	2+2	21	20
Practical tests	practical practical	Using topographic maps to extract the river network Using GIS software to analyze land cover	How to extract the river network Methods used to determine ground	2+2 1+2	22	21

			cover		
Course evaluation .23					
The student's commitment to submitting reports and assignments and -3 respecting their deadlines. Daily tasks and assignments -4.					
Learning and teaching resources .24					
Required textbooks (methodology, if applicable)			plied Geomorphology - Muhammad Hussein Khalaf		
Main references (sources)			The Principles of Geomorphology, -1 Hassan Sayed Ahmed Abu Al-Enein, University Culture Foundation, 14th edition, 1995.		
Recommended supporting books and references (scientific journals, reports...)					
Electronic references, websites					

Course Description Template / Fundamentals of Applied Climatology

.25 Course Name :
Foundations of Applied Climatology
.26 Course code :
.27 Semester / Year : Annual
annual
.28 Date this description was prepared
2025/9/11
.29 Available attendance formats :
In-person and online
.30 Number of study hours (total) / Number of units (total):
hours 2
.31 Name of the course coordinator (if there is more than one, please mention it).
M.M. Omar Ahmed Awad
.32 Course objectives
ining the impact of climatic elements on human activities and performance in order to achieve comfort. / ng certain equations to link the elements of lied climate D and biodiversity and to identify some environmental problems
.33 Teaching and learning strategies
lowing the lecture method and the sequential scientific presentation with motivation veloping students' minds through dialogue and discussion / opting an oral questioning and ctical exam approach for the subject of ather and climate, whether it is a weekly or monthly exam.
.34 Course structure

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	Stations and instruments for measuring climate elements, solar radiation	The concept of applied climatology, its development and instruments	2	1
General discussion and questions	Theory/Discussion	Radiation, temperature, continentality, and equations	Mathematical and statistical methods for measuring climate elements	2	2
General discussion and questions	Theory/Discussion	Effective temperature, temperature ...conversion	Compensating for lost rainfall data and return time	2	3
Discussion and surprise exam	Theory/Discussion	Lange, Demarton, Koppen, Ivanov, Cappotray laboratories	Signs of drought Thornthwaite	2	4
General questions and discussion	Theory/Discussion	Köppen classification, ancestral classifications and human classifications	Climatic classifications	2	5
General questions	Theory/Discussion	Radiation, heat, pressure, wind, and plant pests	Climate and agricultural crops	2	6
General discussion and questions	Theory/Discussion	Temperatures, altitude, wind, dust storms, and other elements	Climate and transport	2	7
General discussion and questions	Theory/Discussion	Climate and a number of human activities	Climate and industrial activity	2	8

First month test for the first semester					9
discussion	Theory/Discussion	Causes and vectors, climate elements	natural climate	2	10
General questions and discussion	Theory/Discussion	Water balance within the human body and thermal balance	Climate and human comfort	2	11
Discussion questions	Theory/Discussion	Effective temperature, wet-bulb temperature index, wind chiller	Comfort indicators and rules	2	12
General questions and discussion	Theory/Discussion	Climate and building materials; the impact of building factors on buildings	Climate and architecture	2	13
General questions, discussion and daily , quiz	Theory/Discussion	Climate, the population's homeland, population distribution, and population density	Climate and Population	2	14
General questions and discussion	Theory/Discussion	Geographical distribution of plants	Climate and natural vegetation	2	15
General questions and discussion	Theory/Discussion	The impact of climate elements on tourism	Climate and Tourism	2	15
General questions and discussion	Theory/Discussion		Climate and water	2	16
Second month test for the first semester					17
General	Theory/Di	Introduction to	climate and soil	2	18

questions and discussion	scussion	soil and the factors affecting its formation			
General questions, discussion and a , surprise quiz	Theory/Di scussion	Solar energy, wind energy, hydropower, bioenergy	Climate and renewable energy sources	2	19
General questions and discussion	Theory/Di scussion	Tidal energy, wave energy, lightning energy and their benefits	Thermal energy in seas and oceans	2	20
General questions and discussion	Theory/Di scussion	Pollution, its sources, treatment, and problems	Climate and air pollution	2	21
First month test for the second semester				1	22
Daily discussion and quiz	Theory/Di scussion	The concept of desertification, its causes, and its manifestations	Climate and desertification	2	23
General discussion and questions	Theory/Di scussion	Drought, heat waves, floods, hurricanes	climate disasters	2	24
General discussion and questions	Theory/Di scussion	Methods and evidence for ancient climate history, evidence for cold climates	climate change	2	25
General discussion and questions	Theory/Di scussion	Natural	Causes of climate change	2	26
General discussion and questions	Theory/Di scussion	mankind		2	27

General questions and discussion	Theory/Discussion		The impact of climate on animal husbandry	2	28
Second month test for the second semester				1	29

Course evaluation .35	
Learning and teaching resources .36	
undations of Applied Climatology Salam Phone.....	Required textbooks (methodology, if applicable)
plied Climatology... Adel Saeed Al-Rawi and Qusay Al-Samarrai	Main references (sources)
me applied references in applied matology, especially master's theses, ctoral dissertations, and research published on the Internet	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Course Description Template / Population

Course Name .37
Population
: Course code .38
Semester / Year : Annual .39
annual
Date this description was prepared .40
2025/9/11
: Available attendance formats .41
In-person and online
:Number of study hours (total) / Number of units (total) .42
hours 2
Name of the course coordinator (if there is more than one, please mention it). .43
M.M. Zainab Jamal Numan
Course objectives .44
s course description provides a concise summary of the course's key features and the expected learning comes for students, demonstrating whether they have made the most of the available learning opportunities. It must be linked to the program description.

Teaching and learning strategies .45	
opting an oral questioning and practical am approach for the subject of weather and mate, whether it is a weekly or monthly .exam	pting a lecture-based approach and sequential ntific presentation, while simultaneously ulating students' minds through dialogue and .discussion
Course structure .46	

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	identification Population geography and key concepts used	Population studies and their importance	3	1
General discussion and questions	Theory/Discussion	The role and importance of population knowledge	Demographic knowledge and its importance	3	2
General discussion and questions	Theory/Discussion	This includes censuses, surveys, and .vital records	Sources of population data	3	3
Discussion and surprise exam	Theory/Discussion	Population census and analysis of their .characteristics	Population census	3	4
General questions and discussion	Theory/Discussion	Studying population . samples	Sample survey	3	5
General questions	Theory/Discussion	Birth, death, and immigration .data	Vital statistics	3	6
General discussion and questions	Theory/Discussion	Population figures have evolved .historically	Population change over time	3	7
General discussion and questions	Theory/Discussion	These include fertility, mortality, migration, and .the economy	Factors affecting the population	3	8
First month test for the first semester				1	9
discussion	Theory/Discussion	This includes the patterns and	Global population distribution	3	10

		factors that .influence it			
General questions and discussion	Theory/Discussion	This includes the population per .area	Population density	3	11
Discussion questions	Theory/Discussion	Population density measurements	Methods used in studying population distribution	3	12
General questions and discussion	Theory/Discussion	The importance of studying age and gender composition and its indicators	Age and gender composition of the population	3	13
General questions, discussion and daily , quiz	Theory/Discussion	Composition by nationality, marital structure, and economic and professional structure	Social and economic characteristics of the population	3	14
General questions and discussion	Theory/Discussion	Natural increase and population growth	population growth	3	15
General questions and discussion	Theory/Discussion	The concept of the workforce and employment and its . importance	Economic composition of the population	3	15
General questions and discussion	Theory/Discussion	Percentage of the economically active .population	Economic activity and participation rates	3	16
Second Monthly Test for the First Semester .1					17
General questions and discussion	Theory/Discussion	The concept of mathematical and astronomical geography	Mathematical and Astronomical Geography	3	18
General questions,	Theory/Discussion	The concept of descriptive	Descriptive Geography and Travel	3	19

discussion and a , surprise quiz		geography and the most important geographical journeys			
General questions and discussion	Theory/Discussion	**Demographic transition theory**	demographic shift	3	20
General questions and discussion	Theory/Discussion	Factors affecting the number of .births	Fertility and birth rates	3	21
First month test for the second semester				1	22
Daily discussion and quiz	Theory/Discussion	The difference between fertility and the ability to conceive, and sources of data for fertility studies and their .measurements	Fertility: its measurement, variation, and influencing factors	3	23
General discussion and questions	Theory/Discussion	The concept of mortality and the most important sources of mortality data	Mortality: its concept and methods of measurement	3	24
General discussion and questions	Theory/Discussion	Measures used in mortality studies	Methods of measuring mortality	3	25
General discussion and questions	Theory/Discussion	The concept of migration, its importance, patterns, and theories of migration	Migration and population movements	3	26
General discussion and questions	Theory/Discussion	Statistical methods for measuring migration using	Methods of measuring migration	3	27

		direct and indirect methods			
General questions and discussion	Theory/Discussion	**Theories and concepts about the relationship between population and resources**	Population, Development and Environment	3	28
Second month test for the second semester				1	29
Course evaluation .47					

Ecology and its Problems / Course Description Template

.48 Course Name :	
Ecology and its problems	
.49 Course code :	
Ecology and its problems	
.50 Chapter / Year :	
Annual schedule	
.51 Date this description was prepared :	
2025/9/11	
.52 Available attendance formats :	
ird-year students according to the weekly class schedule prepared by the department head	
.53 Number of study hours (total) / Number of units (total):	
hours 60	
.54 Name of the course coordinator (if there is more than one, please mention it.)	
Dr. Aws Ali Mohammed **M.M. Nour Ramadan Ali**	
.55 Course objectives	
	The aim of this course is to introduce the student to ecology, the basic concepts of environmental problems, and methods of solving and treating them.
.56 Teaching and learning strategies	
	Learn how to know Environmental science and its roblems, presented in a lecture format, using electronic igital technologies, maps, and the use boards and CDs.

	of modern software in representing environmental .problems

Course structure .57

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	Definition of ecology and its branches	**Ecology: Basic Concepts**	2	1
General discussion and questions	Theory/Discussion	Early beginnings of ecology	A brief history of the development of ecology	2	2
General discussion and questions	Theory/Discussion	Ecology	Ecology has evolved since the 20th century	2	3
Discussion and surprise exam	Theory/Discussion	Types of curricula	Modern research methods in ecology	2	4
General questions and discussion	Theory/Discussion	Environmental components	Basic concepts in ecology	2	5
General questions	Theory/Discussion	The organism's living environment	Biological community	2	6
General discussion and questions	Theory/Discussion	ecological cycles, succession, and ecological stability	Energy flow pathways through the ecosystem	2	7
General discussion and questions	Theory/Discussion	Questions for discussion and review	Examples of ecological relationships adaptation, predation,) (symbiosis	2	8
First month test for the first semester				1	9
discussion	Theory/Discussion	The history of the relationship between humans and the environment	Global environmental problems	2	10
General questions and discussion	Theory/Discussion	Structure and characteristics of the environmental	The concept of the environmental problem	2	11

		problem				
Discussion questions	Theory/Discussion	Concepts of environmental pollution, its degrees, and the factors that .influence it	The problem of environmental pollution	2		12
General questions and discussion	Theory/Discussion	Air pollution – Soil pollution – Water pollution Radioactive – pollution – Noise pollution	Types of environmental pollution	2		13
General questions, discussion, and daily quiz	Theory/Discussion	Tropical forests and their deforestation rates	Tropical deforestation problem	2		14
General questions and discussion	Theory/Discussion	Examples of the causes of tropical forest deforestation in some countries of the world	Causes of tropical forest deforestation	2		15
General questions and discussion	Theory/Discussion	Questions and general review about tropical forest logging	Consequences of deforestation	2		15
General questions and discussion	Theory/Discussion	Definition of desertification, its causes, degrees, and consequences	The problem of desertification	2		16
Second month test for the first semester						17
General questions and discussion	Theory/Discussion	Human impact on the atmosphere	The problem of climate change	2		18
General questions, discussion, and a surprise quiz	Theory/Discussion	Environmental effects of global warming	Greenhouse gases and global warming	2		19

General questions and discussion	Theory/Discussion	Threats to plant and animal life	The problem of biodiversity loss	2	20
General questions and discussion	Theory/Discussion	Questions and general review on the problem of biodiversity	Signs of threats to biodiversity	2	21
First month test for the second semester				1	22
Daily discussion and quiz	Theory/Discussion	Definition of food security and its levels	The global food security problem	2	23
General discussion and questions	Theory/Discussion	Water scarcity, soil degradation, climate change, agricultural pests the role of – governments	Environmental challenges that hinder the achievement of food security	2	24
General discussion and questions	Theory/Discussion	Population growth – dependence on fossil fuels – hybridization and genetic engineering	Risks threatening global food security	2	25
General discussion and questions	Theory/Discussion	The concept of energy and its sources	The problem of energy production	2	26
General discussion and questions	Theory/Discussion	Hydropower - Wind Power	Environmental impacts of energy production	2	27
General questions and discussion	Theory/Discussion	Nuclear energy - Fossil fuels	Solar energy – Tidal energy – Geothermal energy	2	28
General questions and discussion	Theory/Discussion	Examples of natural disasters earthquakes -) volcanic (eruptions	Natural disasters and their classification	2	29
General questions, discussion, and review	Theory/Discussion	Floods and deadly epidemics	giant tropical cyclones	2	30
Second month test for the second semester				1	31

Course evaluation .58	
is distributed according to the tasks assigned to the student, such as daily preparation , daily 100 .etc, and monthly exams , practical exams	
Learning and teaching resources .59	
Ecology and its problems	quired textbooks (methodology, if (applicable
vironmental problems and the maintenance of natural resources	Main references (sources)
vironment: Problems and Solutions, Contemporary Environmental Problems, Geography of Desertification Geography of natural disasters	Recommended supporting books and references (scientific journals, (...reports
Arab Geographers Forum, Internet Network United Nations Environment Data	Electronic references, websites

Environmental problems / Course description template

: Course Name .60	
Environmental problems	
: Course code .61	
Ecology and its problems	
: Chapter / Year .62	
Annual schedule	
: Date this description was prepared .63	
2025/9/11	
: Available attendance formats .64	
urth-year students according to the weekly class schedule prepared by the department head	
:Number of study hours (total) / Number of units (total) .65	
hours 60	
Name of the course coordinator (if there is more than one, please .66 .(mention it	
Dr. Aws Ali Mohammed **M.M. Nour Ramadan Ali**	
Course objectives .67	
	The aim of this course is to introduce the student to environmental problems, the concepts of problems,

	.and methods of solving and treating them
Teaching and learning strategies .68	
	Learn how to know Environmental science and its roblems, presented in a lecture format, using electronic gital technologies , maps, and the use .boards and CDs of modern software in representing environmental .problems

Course structure .69

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General questions	Theory/Di scussion	Climate change caused by industrial activities	Climate change caused by industrial activities	2	1
General discussion and questions	Theory/Di scussion	global warming	global warming	2	2
General discussion and questions	Theory/Di scussion	acid rain	Types of rain	2	3
Discussion and surprise exam	Theory/Di scussion	Ozone layer is being depleted	Tropo-sphere layer	2	4
General questions and discussion	Theory/Di scussion	Solutions to the problem of ozone layer depletion	layers of the atmosphere	2	5
General questions	Theory/Di scussion	Definition of desertification and its dimensions	The concept of desertification	2	6
General discussion and questions	Theory/Di scussion	Causes of desertification	Factors of desertification	2	7
General discussion and questions	Theory/Di scussion	Distribution of desertification	Geographical distribution of deserts	2	8
First month test for the first semester				1	9
discussion	Theory/Di scussion	Remote sensing and desertification	Definition of sensing	2	10
General questions	Theory/Di	International	Methods and solutions	2	11

and discussion	scussion	efforts to combat desertification	for addressing desertification			
Discussion questions	Theory/Di scussion	Deterioration of the environment and marine resources	dynamic balance of the environment	2		12
General questions and discussion	Theory/Di scussion	marine ecosystem	marine ecological balance	2		13
General questions, discussion, and daily quiz	Theory/Di scussion	Negative environmental impacts on marine materials	Problems facing marine revenues	2		14
General questions and discussion	Theory/Di scussion	Destruction of (coastal) wetlands	Addressing demolition operations in wetlands	2		15
General questions and discussion	Theory/Di scussion	Efforts to protect the marine environment	Methods and solutions to problems	2		15
General questions and discussion	Theory/Di scussion	Agricultural development and its environmental dimensions	The concept of agricultural development	2		16
Second month test for the first semester						17
General questions and discussion	Theory/Di scussion	Negative environmental impacts of agricultural projects	Modern methods for agricultural projects	2		18
General questions, discussion, and a surprise quiz	Theory/Di scussion	Deterioration of agriculture and methods of controlling erosion	Addressing soil degradation and developing plans for degradation solutions	2		19
General questions and discussion	Theory/Di scussion	Forest degradation	Reducing forest degradation	2		20
General questions and discussion	Theory/Di scussion	sustainable development	The concept of sustainable development in its	2		21

			general sense	
First month test for the second semester				1
Daily discussion and quiz	Theory/Discussion	Conservation of resources and ecological concepts	Methods of conserving natural resources	2
General discussion and questions	Theory/Discussion	ecological system	Identifying the ecological system	2
General discussion and questions	Theory/Discussion	Geography and Natural Resource Conservation	The concept of geography and resource conservation	2
General discussion and questions	Theory/Discussion	Perspectives on the environment	Linking environmental perspectives	2
General discussion and questions	Theory/Discussion	Resource maintenance concepts	Methods of resource maintenance	2
General questions and discussion	Theory/Discussion	Maintenance movements and their development	The nature and development of the maintenance movement	2
General questions and discussion	Theory/Discussion	Increased attention to environmental issues at the global and regional levels	The environment and global concern for environmental problems	2
General questions and discussion	Theory/Discussion	Goals of renewable resource conservation	Understanding the goals and maintenance of renewable resources	2
Second month test for the second semester				1
Course evaluation				.70
is distributed according to the tasks assigned to the student, such as daily preparation , daily .etc, and monthly exams , practical exams				**100**
Learning and teaching resources				.71
ironmental problems and the maintenance of natural resources		quired textbooks (methodology, if (applicable		
Geography of desertification		Main references (sources)		

vironment: Problems and Solutions, Contemporary Environmental Problems, Ecology and its Issues	Recommended supporting books and references (scientific journals, (...reports
Arab Geographers Forum, Internet Network United Nations Environment Data	Electronic references, websites

Course description template / C. Soil

Course Name : Field Study .72					
C. Soil					
: Course code .73					
Semester / Year : Annual .74					
: Date this description was prepared .75					
2025/9/11					
: Available attendance formats .76					
Total study hours/total units: 2 .77					
Name of the course coordinator (if there is more than one, please .78 .(mention it					
Assistant Professor Taghreed Khalil Mohammed					
Course objectives .79					
Teaching the subject of field study					
Teaching and learning strategies .80					
Course structure .81					
Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
The exam	Lectures	Field study	Passing the exam	2	1
Course evaluation .82					

Learning and teaching resources .83	
ld Study Guide in Geography / Mudar Khalil Al-Kilani	Required textbooks (methodology, if applicable)
ld Study: Foundations and Applications Human Geography / Ahmed Al-Badawi Al-Shari'i	Main references (sources)
	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Course Description / Remote Sensing Applications

Program Description .15				
Credit Hours		Course name	Course code	Year / Level
practical	My eyes	Remote sensing applications		Second
2	1			

Expected learning outcomes of the program .16	
Knowledge	
B - Program-specific skills objectives B1 – Scientific reports B2 - Graduation Research .B3 - Utilizing information in the field of work	أ- Cognitive objectives A1- The student learns about the most important applications of remote sensing in . general fields A2- Understanding the concept of remote sensing A3- Student Definition The most important applications that can be covered in the current . annual curriculum A4- The possibility of using the program which is EARDAS8.4, one of the most important programs used in processing space .data A5- The possibility of ArcMap 10.3 using

	In the study of software remote sensing applications
Skills	
Values	

Teaching and learning strategies .17
.Questions and quizzes during daily lectures . Daily online assignments and tests -2 Guiding students to utilize available external resources related to the course -3

Assessment methods .18
The student must adhere to the deadlines for submitting reports and -1 .assigned duties and respect those deadlines .Electronic daily applications and assignments - 2 Continuous semester and weekly exams that are conducted -3 . electronically The student's participation in the classroom and serious discussion -4 .demonstrates the student's interest and attempt to take responsibility D - General and transferable skills (other skills related to employability and .(personal development D1- Raising the level of students' ability to deal with modern learning .methods D2- Enhancing the student's ability through discussion and constructive .dialogue D3- Encouraging students to access available resources in libraries and on the internet regarding the topic

.D4- Developing the student's ability to deal with multiple media

Faculty .19						
Faculty members						
Faculty preparation		Special requirements/skills (if (any		Specialization		academic rank
lecturer	angel			private	general	
				Natural maps	Physical Geography	Professor Doctor

Professional Development
Orienting new faculty members
Professional development of faculty members
Utilize available resources on the subject to develop the scientific reality of students in this field by following external programs and lectures and preparing plans to develop the course by adding modern vocabulary and materials to the course.

Admission standard .20
The central admissions system is the system adopted by the Ministry of Higher .Education and Scientific Research

Key sources of information about the program .21
Jumah Dawood Muhammad, Principles and Applications of Remote Sensing, .Cairo, 2015 Fouad Bin Ghadban, Remote Sensing in Geographic Information Systems, - .Amman, 2018 .Ali Ali Abdelhadi, Remote Advertising, Cairo, 2018-

Program development plan .22
It is possible to add new vocabulary to the curriculum, such as some advanced .applied methods

Fundamentals of Remote Sensing / Course Description Template

Course Name : Fundamentals of Remote Sensing .84	
50903102 : Course code .85	
Semester / Year : Annual .86	
: Date this description was prepared .87	
2025/9/11	
Daily / Except Friday, Saturday and public : Available attendance forms .88 holidays	
(120) Total study hours / Total units: Total hours (60) / Total units .89	
Name of the course coordinator (if there is more than one, please .90 : (state	
Dr. Ahmed Abdel Ghafour Khattab	
Course objectives .91	
Monitoring the distribution of terrestrial - phenomena on a broad scale and from a high observation position in a framework that cannot be viewed with the same	involve the will The strategy instructor following a blended Between strategy and .approach its

clarity and comprehensiveness through .ground-based observation - Studying changing phenomena such as floods, traffic, weather and climate conditions. These phenomena are difficult to observe directly with the human eye due to their rapid change, and recording them in satellite imagery helps in the .possibility of studying them - Permanent recording of phenomena, so that they can be studied at any time later. This allows for temporal comparisons by studying a set of images taken at different times of the same place, and also allows for understanding the nature of the change .that occurs in a place - To make quick and highly accurate measurements of distances, directions, .areas, heights and slopes - Applied studies in various branches of geography such as: urban studies, agriculture, climate, geomorphology, and .others - Producing and updating maps quickly and accurately, which was not available in the traditional methods that were .prevalent before - Studying changes in land cover such as water, plant and rock cover, and observing the changes that occur to them,	

which is difficult to study in traditional .maps	
	Teaching and learning strategies .92
	Meeting strategies and their • forms (lecture, explanation,). • description, storytelling Discussion and questioning Effective questioning . • strategies). strategies (classroom questions Active learning strategies (I will • choose the strategies according to Design and). • the lecture topic • . implementation strategies Practical demonstration strategies Combining different strategies . • . according to the type of lecture

Structure The course .11

Evaluation Method	Teaching method	Unit or topic name	Required learning outcomes	Hours	Week
Assessing students' background knowledge on the topic and the extent of student participation in classroom discussions .	Lecture and discussion style	**concept Sensing on after development Sensing on after**	Introducing the student to the lecture topic	2	1
Extent of student participation in classroom discussions	Involve students in giving brief presentations on .the topic	The electromagnetic spectrum, its path and interaction	Introducing the student to the lecture topic	2	2

	Student research evaluation Evaluating the reliability of the informatio n obtained by students from the informatio n network	Textual readings and classroom discussions; involving students in giving brief presentations on .the topic	Data collection devices	Introducing the student to the lecture topic	2	3
	Extent of student participatio n in discussions	Textual readings classroom + discussions	Types of remote sensing data	Introducing the student to the lecture topic	2	4
	Extent of student participatio n in discussions	Textual readings classroom + discussions	Means of carrying remote sensing devices	Introducing the student to the lecture topic	2	5
	Student Report Assessmen t on the Topic Concept Exam	Text readings + class discussions; exam; lecture + class discussions	Aerial photography survey	Introducing the student to the lecture topic	2	6
	Monitoring students' understand ing of the lecture topic and their active participatio n in discussions about the lecturer's .topic	Lecture + Classroom Discussions	Measurement s from aerial photographs	Introducing the student to the lecture topic	2	7
	Short exam	Written exam	Generalizatio n of the flight plan and aerial photography	Introducing the student to the lecture topic	6	8

	Evaluating students' responses to the assessment questions posed regarding the lecture topic	Lecture + Classroom Discussions	Analysis and interpretation of remote sensing data	Introducing the student to the lecture topic	6	9
	Student participatio n in discussions +	Involve students in giving brief presentations on .the lecture topic	Analysis and interpretation of aerial photographs	Introducing the student to the lecture topic	6	10
	exam	exam	Remote sensing applications	Introducing the student to the lecture topic	6	11
	Student participatio n in discussions +	Lecture and discussion style	Applications in Physical Geography	Introducing the student to the lecture topic	6	12
	Short exam	Lecture and discussion style	Applications in Human Geography	Introducing the student to the lecture topic	6	13
	Student participatio n in discussions ; monitoring students' understand ing of the informatio n presented in the .lecture	Students discuss their peers' reports and the information they .contain	Digital Aerial Survey	Introducing the student to the lecture topic	6	14
	Evaluating student response to the review	Discussion and review of the above	The relationship between remote sensing and geographic information systems	Introducing the student to the lecture topic	6	15

Learning and teaching resources .93	
Principles of remote sensing	Required textbooks (methodology, if applicable)
Fundamentals of Remote Sensing. **.Prof. Dr. Subhi Al-Daghistani** **.Remote Sensing. Nihad Al-Jubouri**	Main references (sources)
Journals : Journal Faculty of Arts, Al-Farahidi - Journal of the Faculty of Education For science Humanity Tikrit University **Reports : Writing Research on ▪** **. Vocabulary Services Cities** **Periodicals : Review patrols in ▪** **. Libraries Centrality**	Recommended supporting books and references (scientific journals, reports...)
Sites on network The Internet pertains to Remote sensing science, its technologies and programs	Electronic references, websites

Course description template / quantitative statistics

.94 Course Name :
quantitative statistics
.95 Course code :
.96 Semester / Year : Annual
annual
.97 Date this description was prepared
2025/9/11
.98 Available attendance formats :
In-person and online
.99 Number of study hours (total) / Number of units (total):
hours 2
.100 Name of the course coordinator (if there is more than one, please mention it).
Dr. Hamda Hammoudi
.101 Course objectives

.102 Teaching and learning strategies	
opting an oral questioning and practical am approach for the subject of weather and mate, whether it is a weekly or monthly exam.	pting a lecture-based approach and sequential ntific presentation, while simultaneously nulating students' minds through dialogue and discussion.

.103 Course structure

Week	Theoretical material	Scientific material	tes
1	The concept of statistics and its relationship to other sciences		
2	Why does a geographer study ?statistics		
3	The quantitative approach in geography and the factors contributing to its development		
4	Research design		
5	Data collection		
6	Statistical and geographical data sources		
7	Inspection method		

			Types of samples (probability (and non-probability samples		8
			Classifying and displaying geographic data		9
			Measures of central tendency and dispersion		10
			The relationship between the mean, the median, and the mode		11
			Measures of dispersion		12
			Measures of spatial concentration and dispersion		13
			Measures of central tendency of spatial distributions		14
			Measures of dispersion for spatial distributions		15
			standard distance		16
			chi-squared for spatial centering		17
			Lawrence curve and its counterpart		18
			Nearest neighbor analysis		19
			K-Square Test		20
			Intersecting ratio, Yule coefficient, phi coefficient, gamma coefficient		21
			Correlation analysis, diffusion pattern to determine the nature of the trend		22
			Types of relationships		23
			Correlation measures, correlation coefficient for measured phenomena		24
			Simple correlation coefficient		25
			Spearman's rank correlation coefficient		26
			Kendall's rank correlation coefficient		27
			Probability distributions		28
			Frequency distributions		29
			Theory and observation (Binomial distribution)		30
			Estimating and distributing samples and testing hypotheses		31
			decline		32

Course evaluation .104

Learning and teaching resources .105

Policy / Course Description Template

Course Description

This course description provides a concise summary of the course's key features and the expected learning outcomes for the student, demonstrating whether they have made the most of the available learning opportunities . It must be linked to the program description .

Tikrit University / College of Arts	Educational institution .1
Department of Geography and Geographic Information Systems	Scientific Department / Center .2
Geopolitics	Course Name/Code .3
Attendance is according to the weekly class schedule prepared by the department head.	Available forms of attendance .4
Annual schedule	Semester/Year .5
90	Total number of study hours .6

2025/9/11	Date this description was prepared .7
	Course Objectives .8
The aim of this course is to introduce the student to the concept of political geography and geopolitics, the nature of the state and its components, and the factors affecting its power, and to enable the student to identify the problems that states suffer from from the perspective of political geography and to help decision-makers overcome obstacles to influence, control and potential in the field of power and geopolitics.	

Course outcomes , teaching and learning methods, and assessment .9
A- Cognitive objectives .The student learns about the concept of political geography - A2- Understanding the concept of geopolitics and its relationship to political geography. A3- Introducing the student to the concept of state power and methods of quantitatively measuring state power. A4- The student learns about the main components of the state's power: natural, human, and economic. A5- Introducing the student to the state, its components, political boundaries, problems, types, and classification. A6- Introducing the student to the strategy and theories related to state power and the impact of each of the theories in the field of geopolitics.
.B - The skills- based objectives specific to the course B1 - Scientific Reports B2 - Graduation Research B3 - Utilizing information in the field of work
Teaching and learning methods

.Questions and quizzes during daily lectures -1 .Daily assignments and tests -2 Guiding students to utilize available external resources related to the course -3
Assessment methods
The student's commitment to submitting reports and assignments and -1 .respecting their deadlines .Daily tasks and assignments -2 .Ongoing semester and weekly exams -3 The student's participation in the classroom and serious discussion -4 .demonstrates the student's interest and attempt to take responsibility
C- Affective and value-based objectives A1 - Giving the student opportunities for dialogue and discussion during the .lesson .Q2- Enhancing the student's ability to perform assignments and adhere to deadlines C3- Encouraging the student to make use of the available resources C4- Developing the student's ability to find appropriate solutions to any problem . he encounters
Teaching and learning methods
.Discussion and questioning -1 .Daily assignments and tests -2 Guiding students to utilize available external resources related to the course -3
Assessment methods
The student's commitment to submitting reports and assignments and -1 .respecting their deadlines .Daily tasks and assignments -2 .Ongoing semester and weekly exams -3 The student's participation in the classroom and serious discussion -4 .demonstrates the student's interest and attempt to take responsibility
D - General and transferable skills (other skills related to employability and .(personal development .D1- Raising the level of students' ability to deal with modern learning methods .D2- Enhancing the student's ability through discussion and constructive dialogue

D3- Encouraging students to access available resources in libraries and on the internet regarding the topic .D4- Developing the student's ability to deal with multiple media

Course structure .10					
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	For a week
General questions	Theory/Discussion	Defining geopolitics from a 21st-century perspective	The concept of political geography, its development and methodologies	3	1
General discussion and questions	Theory/Discussion	The relationship between political geography and geopolitics	The term "pocks" and "alletic"	3	2
General discussion and questions	Theory/Discussion	Stages of state formation and its components	The concept of the state	3	3
Discussion and surprise exam	Theory/Discussion	Defining power, its forms and characteristics: a geopolitical perspective	State power	3	4
General questions and discussion	Theory/Discussion	Economic indicators and overall strength	Quantitative indicators of strength	3	5
General questions	Theory/Discussion	Astronomical, geographical, and continental location	Spatial characteristics that influence state power	3	6
General discussion and questions	Theory/Discussion	Area	Foundations of state power	3	7
General discussion and questions	Theory/Discussion	Shape	spatial features	3	8
First month test for the first semester				1	9

discussion	Theory/Discussion	Topographical character	Strengths	2	10
General questions and discussion	Theory/Discussion	Mountains and plains	Foundations of state power	2	11
Discussion questions	Theory/Discussion	Climate – Climate and Military Operations	Topographical and physiographical personality	2	12
General questions and discussion	Theory/Discussion	Economic and industrial activity	Economic factors	2	13
General questions, discussion and daily , quiz	Theory/Discussion	Mineral resources and driving forces	Economic factors	2	14
General questions and discussion	Theory/Discussion	Demographic indicators of the country's population	Human resources	2	15
General questions and discussion	Theory/Discussion	Ethnographic indicators	human characteristics	2	15
General questions and discussion	Theory/Discussion	Human Development Indicators	Some indicators of population characteristics that influence state power	2	16
Second month test for the first semester					17
General questions and discussion	Theory/Discussion	Understanding borders and boundaries	Political borders	2	18
General questions, discussion and a ,	Theory/Discussion	Classification of political boundaries	Evolution of political boundaries	2	19

surprise quiz					
General questions and discussion	Theory/Discussion	Borders in mountainous, riverine, forested, and desert regions	Natural, geometric, and human political boundaries	2	20
General questions and discussion	Theory/Discussion	Territorial waters and methods of measuring them	maritime borders	2	21
First month test for the second semester				1	22
Daily discussion and quiz	Theory/Discussion	The concept of strategy, its forms and objectives	Strategic theories related to state power	2	23
General discussion and questions	Theory/Discussion	Halford Mackinder's theory of land power	Biofield theories	2	24
General discussion and questions	Theory/Discussion	The theory of naval power, Alfred Mahan	Maritime strategy	2	25
General discussion and questions	Theory/Discussion	Air Power Theory by Alexander de Seversky	Air Force Strategy	2	26
General discussion and questions	Theory/Discussion	The theory of atomic weapons	Atomic and indirect strategy	2	27
General questions and discussion	Theory/Discussion	Federalism and decentralization	Geography and Federalism	2	28
General questions and discussion	Theory/Discussion	Factors contributing to the emergence of electoral	Election Geography	2	29

		geography			
General questions and discussion	Theory/Discussion	Its goals, stages, and reasons for its emergence	Contemporary economic blocs	2	30
Second month test for the second semester				1	31

Infrastructure .11	
Political Geography from a 21st-Century Perspective... Muhammad Azhar Al-Sammak	Required textbooks .1
Political Geography... Ali Ahmed Haroun Political Geography... Muhammad Mahmoud Al-Deeb	Main references (sources) .2
Some applied references in political geography concerning the mathematical measurement of state power...published on the internet	a) Recommended books and references (scientific journals, (.reports, etc
	b) Electronic references, ...websites

Curriculum Development Plan .12
It is possible to add new vocabulary to the curriculum, such as some economic indicators and use them to measure the strength of the state, such as foreign trade indicators, external debt indicators, and economic dependence from a geopolitical .point of view

Course description template / Urban Geography

.106 Course Name : Urban Geography
.107 Course code :
.108 Semester / Year : Annual
.109 2025/9/11
.110 Attendance according to the weekly class : Available attendance methods .schedule prepared by the department head
.111 Total study hours/total units: 90 hours
.112 Course coordinator's name (if more than one, please specify) : Dr. Saadi Abdullah Ahmed - Ms. Sahar Ismail
.113 Course objectives
The aim of this course is to introduce the student to the concept of urban geography, its importance and objectives, the internal structure of the city, its theories, land uses, urban classification, city sizes and functions, urban problems, regional relations between the city and the countryside, and the economic basis of .the city
.114 Teaching and learning strategies
.1- Giving the student opportunities for dialogue and discussion during the lesson .2- Enhancing the student's ability to perform assignments and adhere to deadlines 3- Encouraging the student to make use of the available resources 4- Developing the student's ability to find appropriate solutions to any problem he

. encounters					
Course structure .115					
Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	An introduction to some concepts related to the city	The concept of urban geography	4	1
General discussion and questions	Theory/Discussion	Natural, military, political, administrative, and religious factors	The role of Arabs in choosing the locations of cities	4	2
General discussion and questions	Theory/Discussion	Main roads and detailed roads	Research methods in urban geography	4	3
Discussion and surprise exam	Theory/Discussion	Location, position, and types of locational and positional cities	The criteria used to distinguish a city from a village	4	4
General questions and discussion	Theory/Discussion	Concentric circuit theory, sector theory, and multiple cores	The internal structure of the city and its theories	4	5
General questions	Theory/Discussion	Centralized power and centralization	Internal city structure controls	4	6
General discussion and questions	Theory/Discussion	Commercial use	Land uses in the city	4	7
General discussion and questions	Theory/Discussion	residential use	Land uses in the city	4	8
			First month test for the first semester	1	9
discussion	Theory/Discussion	Industrial use	Land uses in the city	4	10
General questions and discussion	Theory/Discussion	Recreational use	Land uses in the city	4	11
Discussion questions	Theory/Discussion	Use of transportation within the city	Land uses in the city	4	12
General questions and discussion	Theory/Discussion	City classification	City classification	4	13
General questions, discussion, and daily quiz	Theory/Discussion	City jobs	City jobs	4	14
General questions and	Theory/Discussion	City sizes	City sizes	4	15

discussion					
General questions and discussion	Theory/Discussion	The economic foundation of the city	The economic foundation of the city	4	15
General questions and discussion	Theory/Discussion	Pollution problem	City problems	4	16
Second month test for the first semester					17
General questions and discussion	Theory/Discussion	Water problem	City problems	4	18
General questions, discussion, and a surprise quiz	Theory/Discussion	The problem of education	City problems	4	19
General questions and discussion	Theory/Discussion	health problem	City problems	4	20
General questions and discussion	Theory/Discussion	The problem of sewage networks	City problems	4	21
			First month test for the second semester	1	22
Daily discussion and quiz	Theory/Discussion	electricity problem	City problems	4	23
General discussion and questions	Theory/Discussion	Entertainment problem	City problems	4	24
General discussion and questions	Theory/Discussion	Transportation problem	City problems	4	25
General discussion and questions	Theory/Discussion	The problem of waste collection services	City problems	4	26
General discussion and questions	Theory/Discussion	Concentric Circles Theory	Concentric Circles Theory	4	27
General questions and discussion	Theory/Discussion	City residents	City residents	4	28
General questions and discussion	Theory/Discussion	City morphology	City morphology	4	29
General questions and	Theory/Discussion	Agricultural, administrative,	Regional relations between the city and	4	30

discussion		commercial, industrial and cultural relations	the countryside		
Second month test for the second semester					
Course evaluation .116					
.Participating in the classroom -1 Classroom activities and assignments performed by the student. -2 Exams -3					
Learning and teaching resources .117					
Urban Geography / Sabri Faris Al-Hiti			Required textbooks (methodology, if applicable)		
Urban Geography / Saleh Faleh Hassan			Main references (sources)		
ban Geography / Dr. Yahya Al-Farhan and his colleagues			Recommended supporting books and references (scientific journals, reports...)		
			Electronic references, websites		

Course description template / Agricultural Geography

Course Name : Agricultural Geography .118
: Course code .119
Semester / Year : Annual .120
Date this description was prepared .121
2025/9/11
Attendance according to the weekly class : Available attendance methods .122

.schedule prepared by the department head

Total study hours/total units: 90 hours .123

Name of the course coordinator (if there is more than one, please state): Prof. Dr. Dhafer Ibrahim Taha .124

Course objectives .125

The aim of this course is to introduce the student to the concept of agricultural geography as a branch of geography, its study methods, the geographical factors affecting agricultural production worldwide, and the most important requirements for these products.

Teaching and learning strategies .126

1- Giving the student opportunities for dialogue and discussion during the lesson.
2- Enhancing the student's ability to perform assignments and adhere to deadlines.
3- Encouraging the student to make use of the available resources
4- Developing the student's ability to find appropriate solutions to any problem he encounters .

Course structure .127

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	The concept of agricultural geography	Agricultural Geography	2	1
General discussion and questions	Theory/Discussion	The emergence of agricultural centers	Agricultural Geography	2	2
General discussion and questions	Theory/Discussion	The relationship of agricultural geography to other branches	Agricultural Geography	2	3
Discussion and surprise exam	Theory/Discussion	The relationship of agricultural geography to other sciences	Agricultural Geography	2	4
General questions and discussion	Theory/Discussion	Methods of Studying Agricultural Geography	Agricultural Geography	2	5
General questions	Theory/Discussion	The importance of agricultural geography	Agricultural Geography	2	6
General discussion and questions	Theory/Discussion	Natural factors affecting agricultural production	Agricultural Geography	2	7
General	Theory/Disc	Surface area and its	Agricultural	2	8

discussion and questions	ussion	relation to agricultural production	Geography		
	exam	exam	Agricultural Geography	2	9
discussion	Theory/Discussion	Climatic conditions and their relationship to agriculture	Agricultural Geography	2	10
General questions and discussion	Theory/Discussion	Soil and its relationship to agricultural production	Agricultural Geography	2	11
Discussion questions	Theory/Discussion	Human factors and their relationship to agricultural production	Agricultural Geography	2	12
General questions and discussion	Theory/Discussion	Characteristics of agricultural production	Agricultural Geography	2	13
General questions, discussion, and daily quiz	Theory/Discussion	Agricultural production patterns	Agricultural Geography	2	14
General questions and discussion	Theory/Discussion	Classification of agricultural production	Agricultural Geography	2	15
exam	exam	exam	Agricultural Geography	2	15
30					

Course evaluation .128	
-4 .Participating in the classroom -5 Classroom activities and assignments performed by the student. -6 Exams	
Learning and teaching resources .129	
Required textbooks (methodology, if applicable)	Agricultural Geography, by Nouri Khalil Al-Barazi and Ibrahim Abdul-Jabbar Al-Mashhadani, 2000
Main references (sources)	Geography of Agriculture, by Kadhim Abadi Al-Jasim, 2015
Recommended supporting books and references (scientific journals, reports...)	
Electronic references, websites	

Course description template

Course Title : Geographical Research Methodology and Field Study .130	
: Course code .131	
Semester / Year : Annual .132	
: Date this description was prepared .133	
2025/9/11	
In-person: Available attendance formats .134	
Total study hours: 3 (2) Theory + (1) Practical Total units: 5 .135	
The name of the course coordinator is (Prof. Dr. Adnan Attia (Muhammad .136	
Course objectives .137	
student learns about the concept of scientific research and its cs, and is trained on how to obtain information, use sources, .and prepare a scientific research paper	
Teaching and learning strategies .138	
tive scientific participation in the ssroom and classroom activities ated to the program's content, field ining visits, written tests, and then preparation of the scientific .research	
Course evaluation .139	
.Students must adhere to and respect the deadlines for submitting reports and assignments	
Learning and teaching resources .140	
Required textbooks (methodology, if applicable)	-
Main references (sources)	Scientific Research Methods: Foundations and Applications, Muhammad Azhar Saeed Al-Sammak, Dar Al-Yazouri, Jordan, 2011

Scientific Research Methods: Foundations and Applications, Muhammad Azhar Saeed Al-Sammak, Dar Al-Yazouri, Jordan, 2011	Recommended supporting books and references (scientific journals, reports...)
-	Electronic references, websites

Course structure .13					
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
General questions =	Theory/Discussion =	The concept of scientific research The importance of scientific research	Understanding the nature of scientific research Understanding the importance of scientific research	1 2	1
General discussion and questions =	Theory/Discussion =	Justifications for scientific research	?Why scientific research	1 2	2
General discussion and questions =	Theory/Discussion =	Objectives of scientific research	Understanding the purpose and objective of the research	1 2	3
discussion and questions	Theory/Discussion =	Characteristics of scientific research	Understanding and comprehending the features of the search	1 2	4
General questions and discussion =	Theory/Discussion =	Types of scientific research	Understanding the types of scientific research	1	5
General questions with homework assignment	Theory/Discussion =	Research problem	How does a student define a research ?problem	1 2	6
General questions with homework assignment	Theory/Discussion =	scientific hypotheses	The student learns about the sources of hypotheses and how to formulate .them	2+1	7
General discussion and questions =	Theory / Discussion	Scientific research methods	Understanding the methodology specific to each study of geographical phenomena	2+1	8

First month test				1	9
discussion =	Theory/Discussion =	Research design	Student's understanding of research design	2+1	10
General questions and discussion	Theory/Discussion	Scientific research methods desk study	The student's knowledge of the research sources used in the library	1 2	11
Assigning students how to borrow money	practical	Field visit to the library	The student's knowledge of how to obtain library resources	2+1	12
Questions and discussion	theoretical	Field study/observation	Understanding the phenomenon	3	13
General questions, discussion, and daily quiz	Theory/Discussion	Interview	How to conduct an interview with the respondents	2+1	14
General questions and discussion	practical	survey	How does a student prepare a questionnaire ?form	2+1	15
General questions, discussion , and assignment	theoretical	Field visit	Teaching the student how to conduct the survey	2+1	16
Written questions	theoretical	Written test	Measuring the student's scientific knowledge	2+1	17
General questions, discussion , and assignment	Theory/Discussion	Statistical data	How to present data in tables in scientific research	2+1	18

General questions and discussion	Theory/Discussion			2+1	19
discussion	theoretical			2+1	20
				1	21
				2+ 1	22
discussion	theoretical			2+1	23
Discussion and testing	theoretical			2+1	24
discussion	theoretical			2+1	25
discussion	theoretical			2+1	26
practical	practical			2+1	27
Daily discussion and quiz	theoretical			2+1	28
				1	29

Thematic maps / Course description template

.141 Course Name :
Thematic maps
.142 Course code :
.143 Chapter / Year :
annual

.144 Date this description was prepared :
2025/9/11
.145 Available attendance formats :
.146 Number of study hours (total) / Number of units (total):
hours each week, totaling (90) hours (3)
.147 Name of the course coordinator (if there is more than one, please mention it.)
Dr. Aziz Ibrahim Ali Obeid
.148 Course objectives
-1 e student's knowledge of the importance of maps, their concept and classification. -2 ntifying the most important systems studied in thematic maps. -3 enable the student to prepare a graduation research paper. -4 e student learns about the development of cartographic methods.
.149 Teaching and learning strategies
.1 enable the student to use more than one program -2 iding students to make use of external resources. .3 pid questioning using brainstorming techniques -4 Making the student capable of engaging in dialogue using more than one style.
.150 Course structure

Week	Hours	Required learning outcomes	Unit or topic name	Learning method	Evaluation Method
1	**3**	**Map classification**	**Introduction to maps: their concept and classification**	**theoretical**	**Daily discussions and tests**
2	**3**	**Statistical measurements**	**Types of measurements**	**theoretical practical**	**Daily discussions and tests**
3	**3**	**Statistics**	**Absolute and derived statistics**	**theoretical**	**Daily discussions and tests**
4	3	**How to locate On maps**	**bullet points**	**theoretical practical**	**Daily discussions and**

tests					
Daily discussions and tests	theoretical practical	Linear symbols	How to locate On maps	3	5
Daily discussions and tests	theoretical practical	Survey symbols	How to locate On maps	3	6
Daily discussions and tests	theoretical practical	Sports applications	pping applications	3	7
Daily discussions and tests	theoretical practical	e concept of symbol classification	Classification	3	8
Daily discussions and tests	theoretical practical	thods for constructing triangle maps divided	Representing triangles	3	9
Daily discussions and tests	theoretical practical	Building relative breed maps	Representation of jams	3	10
Daily discussions and tests	theoretical practical	Building cube maps	ube representation	3	11

Daily discussions and tests	theoretical practical	Assembled cube maps	ube representation	3	12
		monthly exam	monthly exam		13
Daily discussions and tests	theoretical practical	Flowcharts	Line maps	3	14
Daily discussions and tests	theoretical practical	Single-motion maps	Line maps	3	15
Daily discussions and tests	theoretical practical	mposite motion maps	Line maps	3	16
Daily discussions and tests	theoretical practical	pes of statistics adopted	Coroplith maps	3	17
Daily discussions and tests	practical	Methods of its construction	Coroplith maps	3	18

Daily discussions and tests	theoretical	vantages and disadvantages of maps The Coroplet	Coroplith maps	3	19
Daily discussions and tests	theoretical practical	Map applications decimeter	Dezemetric maps	3	20
Daily discussions and tests	practical	Building 3D maps	3D maps	3	21
Daily discussions and tests	practical	Building 3D maps	3D maps	3	22
Daily discussions and tests	theoretical	Building a connected cartogram	Cartoon maps	3	23
		monthly exam	monthly exam		24
Daily discussions and tests	theoretical practical	ilding a separate cartogram	Cartoon maps	3	25
Daily	theoretical practical	ometric cartogram construction	Cartoon maps	3	26

discussions and tests					
Daily discussions and tests	theoretical	vantages and advantages of cartogram	Cartoon maps	3	27
Daily discussions and tests	theoretical practical	portional circles method	Circuit maps	3	28
Daily discussions and tests	theoretical practical	Divided circuit method	Circuit maps	3	29
Daily discussions and tests	theoretical practical	thod of bisecting circles	Circuit maps	3	30

151. Course evaluation

(Practical + Theoretical)

.(50) First semester (20), second semester (20), end of year (60), and the passing grade is

152. Learning and teaching resources

Required textbooks (methodology, if applicable)	ematic Maps, Falah Shaker Aswad, 1991
Main references (sources)	ntour maps, Ahmed Ahmed -1 ,Mustafa, 1987 nciples in Mapmaking, -2 .Muhammad Al-Nasser Omran

me practical references in the field -1 of maps are published .On the internet deo tutorials of practical lessons -2 .prepared by the instructor	Recommended supporting books and references (scientific journals, reports...)
Websites related to maps and systems eports prepared by instructors and students	Electronic references, websites

) Geographic Information Systems / Course description template .(GIS

.153 Course Name : Geographic Information Systems (GIS).
.154 Course code :
.155 Semester / Year : Annual
.156 This description was prepared in 2025-2026
2025/9/11
.157 Available forms of attendance : theoretical lectures, practical applications, .field studies, e-learning
.158 Number of study hours (total) / Number of units (total): 4 hours (theoretical: .(practical: 2 ,2
.159 Name of the course coordinator (if there is more than one, please

.(mention it

Faiq Hassan Muhaimid

Course objectives .160

and its applications (**GIS**) Introducing students to the basic concepts of Geographic Information Systems
.**GIS software** Developing skills in analyzing geographic data using •
.Enabling students to create and analyze digital maps •
.Applying remote sensing techniques and coordinate systems in geographical studies •
paring students to use Geographic Information Systems (GIS) in the fields of urban planning, •
. environment, and natural resource management

Teaching and learning strategies .161

.For theory lectures: Presenting basic concepts using interactive presentations and maps
.**QGIS** and**ArcGIS** such as**GIS software** Practical laboratories: Training students on •
.Applied projects: Conducting field studies and analyzing real data •
.**Coursera** and**ESRI Training** E-learning: Using specialized platforms such as •
rkshops and field training: Developing practical skills through partnerships with •
.specialized institutions

Course structure .162

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General question s	ctures + iscussions	GIS Introduction to	derstanding the damentals of Geographic ormation Systems (GIS)	2	1

Course evaluation .163

The assessment is based on several criteria to ensure that learning outcomes are achieved, :including
.Theoretical tests to measure academic understanding•
.Practical assessment through student performance in laboratories •
in real-world GIS Research and applied projects that reflect the student's understanding of using• .problems
Assignments and reports to measure the student's ability to apply theoretical concepts • .practically
Participating in discussions and presentations to measure critical thinking and scientific • .communication

Learning and teaching resources .164

Public lectures	quired textbooks (methodology, (if applicable
	Main references (sources)
,"International Journal of GIS " Scientific articles published in the .specialized reportsESRI	Recommended supporting books and references

(...scientific journals, reports)	
Electronic references, websites	• Electronic references: • ESRI website: www.esri.com. • QGIS website: www.qgis.org. • E-learning platforms: Coursera, edX, ESRI Train and

Course description template / vitality

165. Course Name : English Poetry
vitality
166. Course code :
167. Semester / Year : Annual
168. Date this description was prepared
2025/9/11
169. Available attendance formats :
170. Total study hours/total units: 90/5
171. Name of the course coordinator (if there is more than one, please mention it).
Prof. Dr. Latif Mazaal Saleh
172. Course objectives
1- Participation in the classroom 2- Classroom activities and assignments performed by the student 3- Guiding students to utilize available external resources related to the course
173. Teaching and learning strategies
1- Cognitive objectives through the study of water science and its importance in sustaining life 2- The interrelationship in the study of water resources and its relationship to geography 3- Rationalizing consumption and ways to preserve it 4- Studying the importance of water for the life of living organisms 5- Using sources, research, and the internet to access valuable information about water resources 6- Using artificial intelligence to stimulate ideas. 7- Students' active participation in their personal efforts during lectures and seminars. 7- Scientific reports 8- Scientific research

	.The importance of the topic because it is a current issue and related to the upcoming war -9

Course structure .174					
Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
Exams and questions	Theoretical nd practical	w to study it as a resource	ography of Water Resources	2+2 2+1	1

Course evaluation .175

Learning and teaching resources .176	
Dr. , Geography of Water Resources -1 Hassan Abu Samar and Dr. Hamed Al-Khatib, 1999, First Edition, Safaa Publishing House – Amman	Required textbooks (methodology, if applicable)
Geography of Water Resources: A -2 Contemporary Study, Foundations and Applications. Professor Dr. Fathi Al-Turkmani. Saudi Publishing and Distribution House. Jeddah 2005	Main references (sources)
oks related to the study of water resources	Recommended supporting books and references (scientific journals, reports...)
Artificial intelligence and social media -3	Electronic references, websites

Course description template / Foundations of Meteorology and Climatology

: Course Name .177
Foundations of Meteorology and Climatology
: Course code .178

179. Semester / Year : Annual	
annual	
180. Date this description was prepared	
2025/9/16	
181. Available attendance formats :	
In-person and online	
182. Number of study hours (total) / Number of units (total):	
hours 3	
183. Name of the course coordinator (if there is more than one, please mention it).	
Prof. Dr. Muthanna Mahrous Ali	
184. Course objectives	
introduction to weather and climate elements and the factors affecting their distribution on the Earth's surface	ng certain equations to link weather and climate ments to find biodiversity and identify some environmental problems
185. Teaching and learning strategies	
opting a lecture-based approach and sequential ntific presentation, while simultaneously ulating students' minds through dialogue and discussion.	opting an oral questioning and practical am approach for the subject of weather and mate, whether it is a weekly or monthly exam.
186. Course structure	

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	Definition of climatology and meteorology	The development of climatology and meteorology	4	1
General discussion and questions	Theory/Discussion	Studying the actual value of weather and climate elements	Modern trends in climate studies	4	2
General discussion and questions	Theory/Discussion	Nature of the atmosphere	atmosphere	4	3
Discussion and surprise exam	Theory/Discussion	Basic and transitional layers	layers of the atmosphere	4	4
General questions and discussion	Theory/Discussion	Ozone and impurities	atmospheric pollution	4	5
General questions	Theory/Discussion	The importance of solar radiation	Solar and terrestrial radiation	4	6
General discussion and questions	Theory/Discussion	Angle of fall-1 The distance -2 between the Earth and the Sun	Factors affecting the distribution of solar radiation	4	7
General discussion and questions	Theory/Discussion	Radiation and brightness measuring instruments	Geographical distribution of solar radiation	4	8
First month test for the first semester				1	9
discussion	Theory/Discussion	Calculating average temperatures	Earth's radiation and heat	4	10
General questions	Theory/Discussion	Factors affecting air temperature	Isotherms and Geographical	4	11

and discussion		variation	Distribution			
Discussion questions	Theory/Discussion	Vertical change in air temperature and temperature inversion	Geographical distribution of temperatures during the northern summer and winter	4	12	
General questions and discussion	Theory/Discussion	Daily and annual change	Daily and annual temperature changes	4	13	
General questions, discussion and daily , quiz	Theory/Discussion	Factors affecting pressure distribution and measuring devices	atmospheric pressure	4	14	
General questions and discussion	Theory/Discussion	Permanent -1 pressure zones Pressure in -2 winter	pressure distribution	4	15	
General questions and discussion	Theory/Discussion	Wind measuring instruments and wind types	wind	4	15	
General questions and discussion	Theory/Discussion		wind	4	16	
Second month test for the first semester					17	
General questions and discussion	Theory/Discussion	Warm winds -1 Cold winds -2 Jetstream-3	Local winds associated with low-pressure systems	4	18	
General questions, discussion and a , surprise quiz	Theory/Discussion	Definition of air masses, their types, and types of fronts	Air masses, fronts, and hurricanes	4	19	
General	Theory/Di	Moderate	Low pressure systems	4	20	

questions and discussion	scussion	latitude lows and cyclone intensification			
General questions and discussion	Theory/Discussion	Tropical cyclones, their classification, and hurricane formation	Storms and hurricanes	4	21
First month test for the second semester				1	22
Daily discussion and quiz	Theory/Discussion	Definition of atmospheric humidity, water variation on the Earth's surface, and humidity .terminology	air humidity	4	23
General discussion and questions	Theory/Discussion	Relativity-1 The divorced -2 woman Quality-3	Types of humidity	4	24
General discussion and questions	Theory/Discussion	Conditions for condensation, fog factors, and types of fog	condensation	4	25
General discussion and questions	Theory/Discussion	Clouds in Iraq, pictures of precipitation and its types	clouds	4	26
General discussion and questions	Theory/Discussion	Its types, systems, and oscillations	rain	4	27
General questions and discussion	Theory/Discussion	Factors affecting transpiration	Rainfall in Iraq and evaporation-transpiration	4	28
General questions and discussion	Theory/Discussion	Principles of climatic classifications	Climatic classifications	4	29

General questions and discussion	Theory/Discussion	Copenhagen	Types of classifications	4	30
Second month test for the second semester				1	31

.187 Course evaluation

.188 Learning and teaching resources

e Foundations of Climatology Sabah Mahmoud Al-Rawi.....	Required textbooks (methodology, if applicable)
Weather Geography... Ibrahim Sharif The Foundations of Climatology... Sabah Mahmoud Al-Rawi and Adnan Hazza cal climate ..... Ahmed Saeed Hadid and Hazem Al-Ani	Main references (sources)
me applied references in weather and mate geography, especially master's ses, doctoral dissertations, and research published on the Internet	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Geography of Transport and / Course description template Trade

.189 Course Name :
Geography and Geographic Information Systems
.190 Course code :
Geography of Transport and Trade
.191 Semester / Year : 2025-2026
Annual schedule
.192 Date this description was prepared :
2025/9/11
.193 Available attendance formats :
urth-year students according to the weekly class schedule prepared by the department head
.194 Number of study hours (total) / Number of units (total):

hours 60	
Name of the course coordinator (if there is more than one, please mention it) .195	
Prof. Dr. Manhal Abdullah Hammadi M.M. Shaimaa Awad Mukhlif	
Course objectives .196	
The aim of this course is to study transportation from all natural, economic and human aspects.	
Teaching and learning strategies .197	
Learn how to know Transport and trade geography presented in a lecture format, using electronic displays and CDs. Digital technologies, maps, and the use of modern software are used to understand and represent the surface of Iraq, identify climate elements and their effects on agricultural activity, as well as to identify and study industries of all kinds in Iraq.	

Course structure .198

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	to entrance geography Transportation and trade	on identification geography concept and Transportation Its importance trade	2	1
General discussion and questions	Theory/Discussion	development means Transportation the date via	to understand means development and its Transportation Activity in effect Economic	2	2
General discussion and questions	Theory/Discussion	natural Factors and humanity in Influential Transportation	on identification Geography Factors in Influential networks Transportation	2	3
Discussion and surprise exam	Theory/Discussion	(Transportation) (roads(Land and railways Iron	Patterns analysis Wild Transportation Its importance	2	4

General questions and discussion	Theory/Discussion	Transportation and Maritime ports	on identification importance Transportation in Maritime commerce International	2		5
General questions	Theory/Discussion	Transportation and airports Air	role on identification in Air Transportation Global commerce	2		6
General discussion and questions	Theory/Discussion	networks Transportation Global	networks analysis Global Transportation	2		7
First month test for the first semester				1		9
discussion	Theory/Discussion	geography commerce International	on identification commerce concept and its International patterns	2		10
General questions and discussion	Theory/Discussion	Centers Commercial Global	to understand Centers distribution Global Commercial	2		11
Discussion questions	Theory/Discussion	Centers Commercial Global	to understand Centers distribution Global Commercial	2		12
General questions and discussion	Theory/Discussion	Transportation in And his role Development Economic	relationship analysis between and Transportation development Economic	2		13
General questions, discussion, and daily quiz	Theory/Discussion	Problems Transportation in and trade countries developing	on identification Problems and Transportation trade	2		14
General questions and discussion	Theory/Discussion	Transportation Iraq in and trade	networks analysis and Transportation Iraq in trade	2		15
General questions and discussion	Theory/Discussion	Transportation and smart development	role on identification in Technology development	2		15

		Technological	Transportation			
General questions and discussion	Theory/Discussion	Using statistical methods in land transport	**The role of statistical analysis in transportation**	2		16
Second month test for the first semester						17
General questions and discussion	Theory/Discussion	Negative environmental impacts of agricultural projects	Modern methods for agricultural projects	2		18
General questions, discussion, and a surprise quiz	Theory/Discussion	Deterioration of agriculture and methods of controlling erosion	Addressing soil degradation and developing plans for degradation solutions	2		19
General questions and discussion	Theory/Discussion	Forest degradation	Reducing forest degradation	2		20
General questions and discussion	Theory/Discussion	sustainable development	The concept of sustainable development in its general sense	2		21
First month test for the second semester				1		22
Theory/Discussion	Introduction to the Geography of Transport and Trade	**The concept of transport and trade**	2	23		23
Theory/Discussion	The relationship between transport and trade	**The role of transportation in trade**	2	24		24
Theory/Discussion	Land transport networks	**Understanding transport networks and their importance in the movement of goods**	2	25		25
Theory/Discussion	Transport and Economic	The role of transportation in economic	2	26		26

	Developme nt	development		
My research/discussion	Preparing reports	Preparing reports	2	27
My research/discussion	Preparing reports	Preparing reports	2	28
My research/discussion	Preparing reports	Preparing reports	2	29
My research/discussion	Preparing reports	Preparing reports	2	30
Second month test for the second semester				1
Course evaluation .199				
is distributed according to the tasks assigned to the student, such as daily preparation , daily 100 .etc, and monthly exams , practical exams				
Learning and teaching resources .200				
Geography of Transport and Trade			quired textbooks (methodology, if (applicable	
Geography of Transport and Trade			Main references (sources)	
Urban Geography			Recommended supporting books and references (scientific journals, (...reports	
Arab Geographers Forum, Internet Network United Nations Environment Data			Electronic references, websites	

Course Description Template / Medical

hg[yvhtdm hg'fdm : Course name .201
C. Medical
: Course code .202
Semester / Year : Annual .203
: Date this description was prepared .204
2025/9/11
According to the weekly class schedule : Available attendance methods .205 prepared by the department head
Total study hours/total units: 90 .206
Name of course coordinator (if more than one is used, please specify): .207 M.M. Adnan Mashhan
Course objectives .208
e aim of this course is to introduce the student to the concept of medical geography, its portance, objectives, research methods, the relationship between the environment and man health, the impact of climatic phenomena resulting from air pollution on the vironment and humans, and the impact of medical laboratory experiments on humans .and the environment
Teaching and learning strategies .209
.Giving the student opportunities for dialogue and discussion during the lesson -1 .Enhancing the student's ability to perform assignments and adhere to deadlines -2 Encouraging the student to make use of the available resources -3 veloping the student's ability to find appropriate solutions to any problem he -4 . encounters
Course structure .210

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General questions	eory/Discussion	Defining some concepts	e concept of medical geography	4	1
General discussion and questions	eory/Discussion	Medical geography, its development and research methodologies	Research Methods in Geography	4	2
General discussion and questions	eory/Discussion	e relationship between environment and human health	The impact of the vironment on health man	4	3
Discussion and surprise exam	eory/Discussion	pollution and its dangers man	e effect of pollution on the layer ozone	4	4
General questions and discussion	eory/Discussion	Water pollution	e effect of pollution on health man	4	5
General questions	eory/Discussion	e impact of climate and variables Climate on health	e relationship ween weather and climate Human health	4	6
General discussion and questions	eory/Discussion	e impact of natural disasters	e El Niño its phenomenon effects On human health	4	7

General discussion and questions	eory/Discussion	Flood risks on human health	e impact of floods on human health	4	8
		e effect of earthquakes on health man	Associated damages For earthquakes	4	9
exam	exam	exam	exam	4	10
General questions and discussion	eory/Discussion	e relationship between hurricanes and health man	e origin of the hurricane Modern hurricanes	4	11
Discussion questions	eory/Discussion	e effect of drought on health man	Effects of drought and its cases	4	12
General questions and discussion	eory/Discussion	The impact of wars on human health	Weapons used In wars	4	13
General questions, discussion, and daily quiz	eory/Discussion	pes of chemical weapons and their effects On man	Use of gases During the wars	4	14
General questions	eory/Discussion	e impact of wrong practices On human health	The role of man in Disease outbreak	4	15

and discussion					
General questions and discussion	eory/Discussion	oking and its negative effects n human health, behavior and the environment	oking and its effects on human health	4	15
General questions and discussion	eory/Discussion	effect of drugs on health man	concept of drugs and drug abuse rugs and their types	4	16
	ond month for the first semester	impact of trade on laboratory experiments On man	Conducting tests Medical	4	17
exam	exam	exam	exam	4	18
General questions, discussion, and a surprise quiz	eory/Discussion	r wastewater management Healthy Waste treatment	wastewater Waste management	4	19
General questions and discussion	eory/Discussion	mmon non-epidemic diseases	Factors that help Diabetes	4	20
General questions and	eory/Discussion	Common diseases	esity and weight gain diseases the weight	4	21

discussion					
General questions and discussion	eory/Discussion	ectious epidemic diseases	cholera symptoms and odes of transmission	4	22
Daily discussion and quiz	eory/Discussion	ectious epidemic diseases	malaria	4	23
exam	exam	exam	exam	4	24
General discussion and questions	eory/Discussion	Disease outbreak	ne concept of cancer causes and treatment	4	25
General discussion and questions	eory/Discussion	Maintaining human health	importance of public health	4	26
General discussion and questions	eory/Discussion	role of Islam and its teachings in intaining health and the individual	The role of Islam in reatment of diseases	4	27
General questions and	eory/Discussion	thods of care and maintenance health	ng modern technologies reasonablely	4	28

discussion					

Course evaluation .211	
.Participating in the classroom -7 .Classroom activities and assignments performed by the student -8 Exams	
Learning and teaching resources .212	
Medical Geography, Dr. Abdulrahman Mohammed Al-Hassan -1	Required textbooks (methodology, if applicable)
Geography of Health, Dr. Khalaf Hussein Ali Al-Dulaimi -1	Main references (sources)
Medical Geography, Dr. Abdulrahman Mohammed Al-Hassan -1	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Crimes / Course Description Template

Course Title : Ba'ath Crimes .213
: Course code .214
Semester / Year : Annual .215
This description was prepared in 2025/2026 .216
2025/9/11
: Available attendance formats .217
:Number of study hours (total) / Number of units (total) .218
Name of the course coordinator (if there is more than one, please mention it). .219
M. Aqaba Ahmed Alawi

Course objectives .220	
Teaching and learning strategies .221	
Course structure .222	

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week

Course evaluation .223	
Learning and teaching resources .224	
	Required textbooks (methodology, if applicable)
	Main references (sources)
	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Course description template / Geography of Iraq

: Course Name .225
Geography and Geographic Information Systems
: Course code .226
Geography of Iraq
: Chapter / Year .227
Annual schedule
: Date this description was prepared .228
2025/9/11
: Available attendance formats .229
urth-year students according to the weekly class schedule prepared by the department head
:Number of study hours (total) / Number of units (total) .230
hours 60
Name of the course coordinator (if there is more than one, please .231

.(mention it
M. Ali Faiq Mashal
Course objectives .232
The aim of this course is to study Iraq from all .natural, economic and human aspects
Teaching and learning strategies .233
earn how to know The geography of Iraq will be taught using a lecture format, with the use of electronic boards Digital technologies, maps, and the use of .and CDs odern software are used to understand and represent the face of Iraq, identify climate elements and their effects on agricultural activity, as well as to identify and study .industries of all kinds in Iraq

Course structure .234

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours		Week
General questions	Theory/Discussion	Studying Iraq's geographical location and geological composition	**Geographic location and land structure**	2		1
General discussion and questions	Theory/Discussion	Study of the surface sections of Iraq	**surface**	2		2
General discussion and questions	Theory/Discussion	Identifying the nature of the prevailing climate	**climate**	2		3
Discussion and surprise exam	Theory/Discussion	Identifying the soils of Iraq and their geographical distribution	**soil**	2		4
General questions and discussion	Theory/Discussion	Surface and groundwater in Iraq	**Water resources – water sources**	2		5
General questions	Theory/Discussion	Study of the most important dams, reservoirs and water projects	**Dams and water projects**	2		6
General discussion and questions	Theory/Discussion	A study of the geographical distribution of	**Natural vegetation – natural vegetation areas**	2		7

		natural vegetation in Iraq				
First month test for the first semester				1		9
discussion	Theory/Discussion	Studying the most important crops, including grains, fruits, and vegetables	**industrial crops**	2		10
General questions and discussion	Theory/Discussion	Studying animal production and its importance	**Animal production**	2		11
Discussion questions	Theory/Discussion	Economic sector study	**mineral wealth**	2		12
General questions and discussion	Theory/Discussion	Study of the most important oil ports	**Oil export ports - Types of industries**	2		13
General questions, discussion, and daily quiz	Theory/Discussion	Study of domestic and foreign trade in Iraq	**commerce**	2		14
General questions and discussion	Theory/Discussion	Humidity measuring instruments	**Characteristics of Iraq's foreign trade**	2		15
General questions and discussion	Theory/Discussion	Identifying the most important transportation methods in Iraq	**Types of transportation methods**	2		15
General questions and discussion	Theory/Discussion	Study of roads and railways	**Land transport**	2		16
Second month test for the first semester						17
General questions and discussion	Theory/Discussion	Negative environmental impacts of agricultural projects	Modern methods for agricultural projects	2		18
General questions, discussion, and a	Theory/Discussion	Deterioration of agriculture and	Addressing soil degradation and	2		19

surprise quiz		methods of controlling erosion	developing plans for degradation solutions	
General questions and discussion	Theory/Discussion	Forest degradation	Reducing forest degradation	2
General questions and discussion	Theory/Discussion	sustainable development	The concept of sustainable development in its general sense	2
First month test for the second semester				1
Theory/Discussion	A study of the population of Iraq, its growth, and its customs	**Population**	2	23
Theory/Discussion	Study of population growth in Iraq	**population growth**	2	24
Theory/Discussion	Study of the geographical distribution of the population	**Population distribution**	2	25
Theory/Discussion	Study of population structures in Iraq	Population composition	2	26
My research/discussion	Preparing reports	Preparing reports	2	27
My research/discussion	Preparing reports	Preparing reports	2	28
My research/discussion	Preparing reports	Preparing reports	2	29
My research/discussion	Preparing reports	Preparing reports	2	30
Second month test for the second semester				1
Course evaluation .235				
is distributed according to the tasks assigned to the student, such as daily preparation , daily 100 .etc, and monthly exams , practical exams				
Learning and teaching resources .236				

Geography of Iraq	quired textbooks (methodology, if (applicable
Geography of Iraq	Main references (sources)
Foundations of Climatology	Recommended supporting books and references (scientific journals, (...reports
Arab Geographers Forum, Internet Network United Nations Environment Data	Electronic references, websites

Course description template / Industrial Geography

Course Name : Industrial Geography .237	
EWG3302 : Course code .238	
Semester / Year : Annual .239	
Date this description was prepared : 5/10/2025 .240	
2025/9/11	
In-person, Hall: Available attendance formats .241	
:Number of study hours (total) / Number of units (total) .242	
Name of course coordinator (if there is more than one, please state) : Ms. .243 Faten Saadoun Aboud	
Course objectives .244	
• **Gaining the ability and knowledge of the philosophy and concept of industrial geography .**	**Course objectives**
• **To learn about the most important industrial branches and the principles of industrial geography .**	
• **Scientific analysis for selecting suitable industrial sites, taking into account theoretical frameworks and experiences. Scientific approach to determining the location of the industrial project .**	
Teaching and learning strategies .245	
• **sting students' ability to understand the factors that contributed to industrial development .**	strategy
• **veloping students' knowledge of industrial theoretical principles and foundations**	

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- **Developing students' scientific analysis of industrial sites .**
- **Testing students' mental skills regarding industrial localization theories .**
- **veloping students' ability to scientifically analyze economics Industrial localization .**

Course structure .246

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General discussion and questions	Theory/Discussion	Industry, its characteristics and stages of development	Definition of industry	3	1
General discussion and questions	Theory/Discussion	Primitive industry, simple industry, modern industry, competition among industrialized nations	Industry patterns	3	2
General discussion and questions	Theory/Discussion	Its development, functions, and research methods in industrial geography	The evolution of industrial geography	3	3
Discussion and surprise exam	Theory/Discussion	Considerations for selecting the optimal industrial site and primary and secondary localization factors raw materials	Factors affecting industrial localization	3	4
General questions and discussion	Theory/Discussion	Capital, transportation and communications, and transportation jobs	Key factors of industrial localization	3	5

General questions	Theory/Discussion	Labor force, classification of industries according to the importance of the work and workers' wages, energy sources	factors of Key industrial localization	3	6
General discussion and questions	Theory/Discussion	Wood – Wind and direct water power Coal –	Energy sources	3	7
		First month test for the first semester			8
discussion	Theory/Discussion	Oil and natural gas, electricity	Energy sources	3	9
General questions and discussion	Theory/Discussion	The market, industrial policy, and personal desires	Key factors of industrial localization	3	10
Discussion questions	Theory/Discussion	Land, water, climate	Secondary factors of industrial localization	3	11
General questions and discussion	Theory/Discussion	Weber's theory, Kristaller, Roström	Theories of industrial localization	3	12
General questions and discussion	Theory/Discussion	Norcliffe's theory of industrial places	Theories of industrial localization	3	13

			Second month test for the first semester		14
General questions and discussion	Theory/Discussion	Industrial localization and industrial regions in Western Europe	major industrial regions	3	15
			Chapter Two		
General questions and discussion	Theory/Discussion	Agricultural development and its environmental dimensions	Industrial regions in Germany	3	16
General questions and discussion	Theory/Discussion	Traditional industry, mechanized industry, large industries	Types of industrial activity		17
General questions, discussion, and a surprise quiz	Theory/Discussion	Machinery and transport equipment	Engineering industries, machinery and transport equipment		18
General questions and discussion	Theory/Discussion	Heavy chemicals, fine chemicals	Chemical industries		19
General questions and discussion	Theory/Discussion	Characteristics of the oil industry	Characteristics of the oil industry		20
			First month test for the second semester		21

General questions, discussion, and a surprise quiz	Theory/Discussion	Oil refining and its refining stages	Oil refining industry		22
General questions and discussion	Theory/Discussion	Ease of transportation, international agreements, and advertising for .commercial goods	International trade in industrial goods		23
General questions and discussion	Theory/Discussion	Western Europe, North America, Eastern Europe, Japan	major commercial areas		24
General questions and discussion	Theory/Discussion	The iron and steel industry: factors that led to the large size of the iron and .steel industry	Main industries		25

247. Course evaluation

-5 The student's commitment to submitting reports and assignments and respecting their deadlines.

-6 Daily tasks and assignments.

-7 Ongoing semester and weekly exams.

-8 The student's participation in the classroom and serious discussion demonstrates the student's interest and attempt to take responsibility.

248. Learning and teaching resources

Industrial Geography	Required textbooks (methodology, if applicable)
Planning and Development	Main references (sources)
	Recommended supporting books and references (scientific journals, reports...)
With reliance on internet data	Electronic references, websites

Course description template / Geomatics

Course Name : English Poetry .249	
Geomatics	
: Course code .250	
Semester / Year : Annual .251	
annual	
Date this description was prepared .252	
2025/9/11	
: Available attendance formats .253	
In-person and online	
:Number of study hours (total) / Number of units (total) .254	
hours 3	
Name of the course coordinator (if there is more than one, please .255 .(mention it	
Dr. Saad Thamer Ibrahim	
Course objectives .256	
Introducing the basic concepts of geomatics and its importance in studying and spatially analyzing geographical phenomena to understand their distribution and impact on human activities and .the environment	Enabling the student to use modern digital technologies, link different spatial data, and build digital maps that illustrate the spatial and .temporal variations of geographical phenomena
Teaching and learning strategies .257	
Adopting a lecture-based approach and sequential scientific presentation, while simultaneously stimulating students' minds .through dialogue and discussion	Adopting the method of oral questions and practical exam for the subject of Geomatics, .whether it is a weekly or monthly exam
Course structure .258	

Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
General questions	Theoretical/Discussion/Practical	Introduction to Geomatics and Geospatial Technologies	Understanding the general framework of geomatics and its contemporary applications	3	1
General discussion and questions	Theoretical/Discussion/Practical	Types of geospatial data and their digital sources	Identifying the types of geospatial data and their characteristics	3	2
General discussion and questions	Theoretical/Discussion/Practical	Geospatial databases and spatial layer construction	The ability to work with spatial databases	3	3
Discussion and surprise exam	Theoretical/Discussion/Practical	Principles of spatial analysis in geographic information systems	Spatial phenomena GIS analysis using	3	4
General questions and discussion	Theoretical/Discussion/Practical	Geomatics applications in physical and human geography	The application of geomatics in the study of natural and human phenomena	3	5
General questions	Theoretical/Discussion/Practical	Development of field survey work	and modern environments	3	6
General discussion and questions	Theoretical/Discussion/Practical	Field survey using modern equipment	Acquiring field surveying and ground data collection skills	3	7
General discussion and	Theoretical/Discussion/Practic	**Aerial surveying and aerial**	Understanding the fundamentals of aerial surveying and	3	8

questions	al	**photography**	photogrammetry		
First month test for the first semester				2	9
discussion	Theoretical/Discussion/Practical	Remote sensing and satellite imagery	Multispectral analysis of satellite imagery	3	10
General questions and discussion	Theoretical/Discussion/Practical	Digital processing of satellite images	The ability to digitally process satellite images	3	11
Discussion questions	Theoretical/Discussion/Practical	Spectral indicators and land cover analysis	The use of spectral indicators in geographical studies	3	12
General questions and discussion	Theoretical/Discussion/Practical	Classifying satellite imagery and preparing maps	Classifying satellite imagery and producing maps	3	13
General questions, discussion and daily , quiz	Theoretical/Discussion/Practical	Integration of remote sensing and geographic information systems	Integrating remote GIS sensing data with	3	14
General questions and discussion	Theoretical/Discussion/Practical	**Global Positioning (GPS) System**	Understanding Global Positioning Systems and their Applications	3	15
General questions and discussion	Theoretical/Discussion/Practical	applications GPS in field surveying	in field GPS Using data collection	3	15
General questions and discussion	Theoretical/Discussion/Practical	Digital maps and cartographic design	Producing digital maps	3	16
Second month test for the first semester					17
General questions and	Theoretical/Discussion/Practic	Analyzing spatial changes using time data	Analysis of spatial and temporal changes	3	18

discussion	al				
General questions, discussion and a , surprise quiz	Theoretical/Discussion/Practical	Open geospatial data platforms	Using space data platforms	3	19
General questions and discussion	Theoretical/Discussion/Practical	Geomatics applications in the environment and natural resources	Application of geomatics in environmental studies	3	20
General questions and discussion	Theoretical/Discussion/Practical	Geomatics in urban planning	Application of geomatics in urban studies	3	21
First month test for the second semester				2	22
Daily discussion and quiz	Theoretical/Discussion/Practical	Geomatics in Disaster and Risk Management	Analysis of risks and natural disasters	3	23
General discussion and questions	Theoretical/Discussion/Practical	Spatial modeling and decision support	Using spatial modeling in decision-making	3	24
General discussion and questions	Theoretical/Discussion/Practical	**Artificial intelligence in geomatics**	The use of artificial intelligence in spatial analysis	3	25
General discussion and questions	Theoretical/Discussion/Practical	An applied project in geomatics	Implementing a comprehensive applied project	3	26
General discussion and questions	Theoretical/Discussion/Practical	Drone in applications aerial surveying	Understanding the use of drones in spatial data collection	3	27
General questions and	Theoretical/Discussion/Practic	Network and infrastructure analysis using	Spatial network and road analysis	3	28

discussion	al	GIS			
General questions and discussion	Theoretical/Discussion/Practical	*Remote sensing for monitoring vegetation cover and crops*	Practical application of remote sensing technologies in agriculture	3	29
General questions and discussion	Theoretical/Discussion/Practical	*Geomatics applications in the environment and climate change*	Monitoring environmental pollution and climate change	3	30
Second month test for the second semester				2	31

Course evaluation .259	
Learning and teaching resources .260	
ital Maps ... Dr. Najib Al-Zaidy and Dr. Saad Thamer Ibrahim alytical maps... Dr. Najib Al-Zaidy and Dr. Saad Thamer Ibrahim	Required textbooks (methodology, if applicable)
vanced Maps... Dr. Najib Al-Zaidy and Dr. Saad Thamer Ibrahim	Main references (sources)
me applied references in geomatics, ecially master's theses, doctoral sertations, and research published on the Internet	Recommended supporting books and references (scientific journals, reports...)
	Electronic references, websites

Course Description / Geographical Thought

This course description provides a concise summary of the course's key features and the expected learning outcomes for students, demonstrating whether they have made the most of the available learning opportunities. It must be linked to the program description.

Tikrit University / College of Arts	Educational institution .14
Department of Geography and Geographic Information Systems	Scientific Department / Center .15
Geographical thought	Course Name/Code .16
Attendance is according to the weekly class schedule prepared by the department head.	Available forms of attendance .17
Annual schedule	Semester/Year .18
90	Total number of study hours .19
2025/1/27	Date this description was prepared .20
	Course Objectives .21
The objective is to introduce the student to geographical thought, its methods, its general focus, and its relationship to the development of geography, to identify the most important modern geographical schools, and to understand geographical thought and its relationship to the fields of geographical knowledge.	

Course outcomes , teaching and learning methods, and assessment .22
أ- Cognitive objectives
A1- Introducing the student to the concepts of geographical thought.
A2- Introducing the student to the approaches of geographical thought And its general theme.
A3- Student Definition The relationship between geographical thought and the development of geography.
A4- The student learns about the most important geographical schools
A5- Introducing the student to geography and its relationship to the fields of geographical knowledge

.A6- Introducing the student to modern geographical trends in modern schools
.B - The skills- based objectives specific to the course B1 - Scientific Reports B2 - Graduation Research B3 - Utilizing information in the field of work
Teaching and learning methods
.Questions and quizzes during daily lectures -1 .Daily assignments and tests -2 . Guiding students to utilize the available external resources regarding the course -3
Assessment methods
The student's commitment to submitting reports and assignments and -5 .respecting their deadlines .Daily tasks and assignments -6 .Ongoing semester and weekly exams -7 The student's participation in the classroom and serious discussion -8 .demonstrates the student's interest and attempt to take responsibility
C- Affective and value-based objectives A1 - Giving the student opportunities for dialogue and discussion during the .lesson .Q2- Enhancing the student's ability to perform assignments and adhere to deadlines C3- Encouraging the student to make use of the available resources C4- Developing the student's ability to find appropriate solutions to any problem . he encounters
Teaching and learning methods
.Discussion and questioning -1 .Daily assignments and tests -2 Guiding students to utilize available external resources related to the course -3

Assessment methods
-5 The student's commitment to submitting reports and assignments and respecting their deadlines. -6 Daily tasks and assignments. -7 Ongoing semester and weekly exams. -8 The student's participation in the classroom and serious discussion demonstrates the student's interest and attempt to take responsibility.
D - General and transferable skills (other skills related to employability and personal development). D1- Raising the level of students' ability to deal with modern learning methods. D2- Enhancing the student's ability through discussion and constructive dialogue. D3- Encouraging students to access available resources in libraries and on the internet regarding the topic D4- Developing the student's ability to deal with multiple media.

Course structure .23					
Evaluation Method	Teaching method	Unit/Topic Name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	identification Geographical thought and its relationship to the development of geography	Geographical thought, its general focus, and its relationship to the development of .geography	2	1
General discussion and questions	Theory/Discussion	Defining the importance and nature of geographical knowledge	The nature of geographical knowledge	2	2
General discussion and questions	Theory/Discussion	Classifying the relationship between geography and fields of geographical knowledge	Geography and its relationship to the fields of geographical knowledge	2	3
Discussion and surprise exam	Theory/Discussion	Defining the regional concept and regional geography, and understanding spatial variations .between regions	The regional concept and regional geography	2	4
General questions and discussion	Theory/Discussion	Introducing physical and human and geography explaining how humans interact with this environment and exploit its . resources	Physical and human geography	2	5
General	Theory/Di	Geography in	Geographical thought	2	6

questions	scussion	ancient Iraqi thought	in ancient Iraqi civilization		
General discussion and questions	Theory/Di scussion	**Geography in ancient Egyptian thought**	Geographical thought in Egyptian civilization	2	7
General discussion and questions	Theory/Di scussion	**Geography in ancient Chinese thought**	Geographical thought in Chinese civilization	2	8
First month test for the first semester				1	9
discussion	Theory/Di scussion	Geography in ancient Indian thought	Geographical thought in Indian civilization	2	10
General questions and discussion	Theory/Di scussion	Geography in ancient Roman thought	Geographical thought in Roman civilization	2	11
Discussio n questions	Theory/Di scussion	Geography in ancient Greek thought	Geographical thought in Greek civilization	2	12
General questions and discussion	Theory/Di scussion	Geography in geographical thought pre-Islam	Geographical thought before Islam	2	13
General questions, discussion and daily , quiz	Theory/Di scussion	Foundations of geographical thought	This includes location, place, environment, and human .interaction	2	14
General questions and discussion	Theory/Di scussion	**Islamic Geographical Thought**	Arab-Islamic geographical thought	2	15
General questions and	Theory/Di scussion	Geography in Arab-Islamic geographical	Arab-Islamic geographical thought up to the end of the	2	15

discussion		thought until the end of the Ottoman era	Ottoman era		
General questions and discussion	Theory/Discussion	Arab Geographical Fields	Understanding and knowledge of the fields of descriptive and human geography	2	16
Second month test for the first semester					17
General questions and discussion	Theory/Discussion	The concept of mathematical and astronomical geography	Mathematical and Astronomical Geography	2	18
General questions, discussion and a , surprise quiz	Theory/Discussion	The concept of descriptive geography and the most important geographical journeys	Descriptive Geography and Travel	2	19
General questions and discussion	Theory/Discussion	Studying the region with its natural and human characteristics . and interactions	Regional geography	2	20
General questions and discussion	Theory/Discussion	Studying the characteristics of the natural area and its interactions	Physical Geography	2	21
First month test for the second semester				1	22
Daily discussion and quiz	Theory/Discussion	Study of the characteristics of the human zone	Human Geography	2	23
General discussion and questions	Theory/Discussion	Studying cartography and the difference between a map and a chart	The emergence of cartography	2	24

General discussion and questions	Theory/Discussion	**Studying and documenting the geography and cultures of the unknown interior regions** .	Modern geographical discoveries	2	25
General discussion and questions	Theory/Discussion	Using modern technologies in all geographical studies	New trends in modern geography in modern schools	2	26
General discussion and questions	Theory/Discussion	Focus on the relationship between humans and the environment using quantitative analysis and .modeling	American Geographical School	2	27
General questions and discussion	Theory/Discussion	A study of regional interactions with an emphasis on culture and urban planning	English Geographical School	2	28
General questions and discussion	Theory/Discussion	*Analyzing natural systems and their impact on human activity using a rigorous scientific methodology*	German Geographical School	2	29
General questions and discussion	Theory/Discussion	*The interaction of geography with globalization and the resilience of ecosystems*	Contemporary geographical concepts	2	30

Second month test for the second semester	1	31

Infrastructure .24	
Geographical thought	Required textbooks .1
External sources	Main references (sources) .2
Some references related to geographical thought...are published on the internet	a) Recommended books and references (scientific journals, (.reports, etc
	b) Electronic references, ...websites

Curriculum Development Plan .25
It is possible to add new vocabulary to the curriculum, such as some lessons in .modern geographical thought

Course description template

Course Name : A New World .261
EWG3302 : Course code .262
Semester / Year : Annual .263
Date this description was prepared : 5/10/2025 .264

.265 In-person, Hall: Available attendance formats	
.266 Number of study hours (total) / Number of units (total):	
.267 Name of course coordinator (if more than one, please state) : M.M. Marwaj Taher Numan	
.268 Course objectives	
Course objectives	• **Scientific reports** • **B2 - Mapping the geographical features of the continents** • **B3 - Familiarity with the geography of the continents to study the interrelationships between phenomena.**
.269 Teaching and learning strategies	

• **ing the student opportunities for dialogue and discussion during the lesson in order to achieve the learning objectives.** • **- Enhancing the student's ability to perform assignments, adhere to deadlines, and respect time.** • **3- Encouraging students to make use of modern and available educational tools** • **- Developing the student's ability to find appropriate solutions to any problem he encounters.**	strategy

Course structure .270

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General questions	Theory/Discussion	Stages of Earth's evolution and the formation of continents	Understanding the evolution of the Earth and the formation of the continents	2	1
General discussion and questions	Theory/Discussion	Location and area of the continent of Asia	Understanding the geographical location of the Americas and the importance of this location	2	2
General discussion and questions	Theory/Discussion	Structure and topography	Studying Asia's geological structure and topography	2	3
Discussion and Exam	Theory/Discussion	Climate of the Asian continent	Understanding the continent's climatic conditions	2	4
General questions and discussion	Theory/Discussion	Climatic regions of the continent	Understanding the characteristics of the continent's climatic regions	2	5
General questions	Theory/Discussion	natural plant	Study of plant regions and their characteristics	2	6

General discussion and questions	Theory/Discussion	Water resources	Understanding the continent's water resources and their sources	2	7
Theory /Discussion =	Population	Studying the characteristics of the population of the Asian continent		2	8
			First month test	2	9
discussion	Theory/Discussion	agricultural production	Identifying agricultural production varieties	2	10
General questions and discussion	Theory/Discussion	mineral wealth	A study of the most important minerals and their geographical distribution in the continent	2	11
Discussion questions	theoretical	The continent of Europe: Location and area	Identifying the geographical location and area of the continent of Europe	2	12
			Monthly exam/first semester	1	13
General questions, discussion, and daily quiz	Theory/Discussion	Continental topography	Study of the topographical characteristics of the continent of Europe	2	14
General questions and discussion	Theory/Discussion	Continent's climate	Understanding the nature of the climate on the continent	2	15

General questions and discussion	theoretical	Climatic regions of Europe	Studying the most important climatic regions in the continent and understanding the characteristics of each region	2	16
General questions and discussion	Theory/Discussion	natural plant	Understanding the geographical distribution of natural vegetation on the continent	2	17
General questions and discussion	Theory/Discussion	Water resources	Study of water resources and their sources	2	18
General questions and discussion	Theory/Discussion	Continental population	Studying the characteristics of the continent's population	2	19
discussion	theoretical	agricultural production	Understanding the most important agricultural products in the continent and their geographical distribution	2	20
			Monthly exam/Second semester	1	21
			Study of mineral resources and their types mineral wealth Theoretical discussion	2	22
discussion	theoretical	Africa: Location and Area	Study of the geographical and astronomical location and area of the African continent	2	23

Discussion and testing	theoretical	Geology and topography of the continent	Understanding the geological structure and topography of the continent	2	24
discussion	theoretical	climate	Studying the climatic characteristics of the continent	2	25
discussion	theoretical	climatic regions	Knowledge of climatic regions and their characteristics	2	26

Course evaluation .271	
The student's commitment to submitting reports and assignments and respecting their deadlines. -9 Daily tasks and assignments. -10 Ongoing semester and weekly exams. -11 The student's participation in the classroom and serious discussion demonstrates the student's interest and attempt to take responsibility. -12	
Learning and teaching resources .272	
Required textbooks .1	General Geography of the Continents, Youssef Yahya Ta'mas, 1990
Main references (sources) .2	Geography of Eurasia, Hashim Khudair Al-Janabi, 1987 The Internet
Required textbooks .1	General Geography of the Continents, Youssef Yahya Ta'mas, 1990
Main references (sources) .2	Geography of Eurasia, Hashim Khudair Al-Janabi, 1987 The Internet

Course description template / Geography of Energy and Minerals

Course Name : Geography of Energy and Minerals .273
EWG3302 : Course code .274
Semester / Year : Annual .275
Date this description was prepared : 7/11/2025 .276
In-person, Hall: Available attendance formats .277
:Number of study hours (total) / Number of units (total) .278
: Name of the course coordinator (if there is more than one, please state) .279
M. Dr. Yasser Lafta Hussein
Course objectives .280

• **Gaining the ability and knowledge of the philosophy and concept of energy and mineral geography .** • **Identifying the most important types Energy and knowledge of different types of minerals .** • **Scientific analysis for selecting suitable industrial sites, taking into account theoretical frameworks and experiences. Scientific approach to determining the location of the industrial project .**	**Course objectives**

Teaching and learning strategies .281	
• **sting students' ability to understand the factors that contributed to energy dependence and its most important types .** • **veloping students' knowledge of industrial theoretical principles and foundations .** • **Developing students' scientific analysis of the most important types of energy .** • **Testing students' mental skills regarding industrial localization theories .** • **To enable the student to prepare a graduation research paper .**	strategy

Course structure .282

Evaluation Method	Learning method	Unit or topic name	Required learning outcomes	Hours	Week
General	Theory/Discussion	Energy, its properties and	Definition of energy	3	1

discussion and questions		stages of development			
General discussion and questions	Theory/Discussion	Primitive energy, the development of energy dependence, competition among industrialized nations	Types of energy	3	2
General discussion and questions	Theory/Discussion	Its development, functions, and research methods in industrial geography	The evolution of industrial geography	3	3
Discussion and surprise exam	Theory/Discussion	Considerations for selecting the optimal industrial site and primary and secondary localization factors raw materials	Factors affecting localization: energy and types of minerals	3	4
General questions and discussion	Theory/Discussion	Raw materials, transportation and communications, and transportation functions	Key factors of industrial localization	3	5
General questions	Theory/Discussion	: Energy sources depletable and . renewable	Types of energy and their sources	3	6
General discussion and questions	Theory/Discussion	Factors influencing its formation . Its geographical distribution. Its types. Its .importance	Types of minerals	3	7
		First month test for the first semester			8

discussion	Theory/Discussion	Oil and natural gas, electricity	Energy sources	3	9
General questions and discussion	Theory/Discussion	Solar energy. Wind .energy	Renewable energy sources	3	10
Discussion questions	Theory/Discussion	pollutants	Types of traditional energy and their effects	3	11
General questions and discussion	Theory/Discussion	Its definition, classification, and origin	Minerals	3	12
General questions and discussion	Theory/Discussion	Properties of minerals, stages of production, mining laws	Properties of minerals	3	13
			Second month test for the first semester		14
General questions and discussion	Theory/Discussion	Industrial localization and industrial regions in Western Europe	major industrial regions	3	15
			Chapter Two		
General questions and discussion	Theory/Discussion	Geographical location of the mineral	Factors affecting the production of minerals and energy sources	3	16
General questions and discussion	Theory/Discussion	Natural factors: Geographical location, Climate	Energy sources		17

General questions, discussion, and a surprise quiz	Theory/Discussion	Natural factors: geological structure; movement of the Earth's crust	Minerals		18
General questions and discussion	Theory/Discussion	Natural factors. Erosion factors. Distance of the mineral from the .Earth's surface	Energy and mineral production		19
General questions and discussion	Theory/Discussion	Characteristics of the oil industry	Characteristics of the oil industry		20
			First month test for the second semester		21
General questions, discussion, and a surprise quiz	Theory/Discussion	Oil refining and its refining stages	Oil refining industry		22
General questions and discussion	Theory/Discussion	.Iron. Aluminum	metallic minerals		23
General questions and discussion	Theory/Discussion	Copper, gold, silver, and other metals	metallic minerals		24
General questions and discussion	Theory/Discussion	The iron and steel industry: factors that led to the large size of the iron and .steel industry	Main industries		25

Course evaluation .283	
The student's commitment to submitting reports and assignments and respecting their deadlines. -13 Daily tasks and assignments. -14 Ongoing semester and weekly exams. -15 The student's participation in the classroom and serious discussion demonstrates the student's interest and attempt to take responsibility. -16 (Scientific + Theoretical) (50) First semester (20), second semester (20), end of year (60), and the passing grade is.	
Learning and teaching resources .284	
Geography of minerals and energy resources	Required textbooks (methodology, if applicable)
Planning and Development	Main references (sources)
	Recommended supporting books and references (scientific journals, reports...)
With reliance on internet data	Electronic references, websites